

Proposal # 2001- <u>C213</u> (Office Use Only)
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**PSP Cover Sheet** (Attach to the front of each proposal)Proposal Title: Understanding Natural Processes Through Active Riparian RestorationApplicant Name: Sacramento River PartnersContact Name: John CarlonMailing Address: 261 E. 3rd Street, Chico, CA 95928Telephone: (530) 894-3474Fax: (530) 894-2970Email: sacriver@c-zone.netAmount of funding requested: \$ 1,810,690

Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.

State cost \_\_\_\_\_

Federal cost \_\_\_\_\_

**Cost share partners?**☒ Yes ☐ NoIdentify partners and amount contributed by each Sacramento River National Wildlife Refuge (\$25,000),  
local conservation groups (\$15,360),**Indicate the Topic for which you are applying (check only one box).**

- |   |  |
|---|--|
| <input type="checkbox"/> Natural Flow Regimes                           | <input type="checkbox"/> Beyond the Riparian Corridor                |
| <input type="checkbox"/> Nonnative Invasive Species                     | <input type="checkbox"/> Local Watershed Stewardship                 |
| <input checked="" type="checkbox"/> Channel Dynamics/Sediment Transport | <input type="checkbox"/> Environmental Education                     |
| <input type="checkbox"/> Flood Management                               | <input type="checkbox"/> Special Status Species Surveys and Studies  |
| <input type="checkbox"/> Shallow Water Tidal/ Marsh Habitat             | <input type="checkbox"/> Fishery Monitoring, Assessment and Research |
| <input type="checkbox"/> Contaminants                                   | <input type="checkbox"/> Fish Screens                                |

What county or counties is the project located in? Butte County, CaliforniaWhat CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible Ecozone 3.3**Indicate the type of applicant (check only one box):**

- |  |  |
|--|--|
| <input type="checkbox"/> State agency                    | <input type="checkbox"/> Federal agency        |
| <input type="checkbox"/> Public/Non-profit joint venture | <input checked="" type="checkbox"/> Non-profit |
| <input type="checkbox"/> Local government/district       | <input type="checkbox"/> Tribes                |
| <input type="checkbox"/> University                      | <input type="checkbox"/> Private party         |
| <input type="checkbox"/> Other: _____                    |  |

Indicate the primary species which the proposal addresses (check all that apply):

- |  |   |
|--|---|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon                               | <input checked="" type="checkbox"/> Spring-run chinook salmon |
| <input checked="" type="checkbox"/> Winter-run chinook salmon  | <input checked="" type="checkbox"/> Fall-run chinook salmon   |
| <input checked="" type="checkbox"/> Late-fall run chinook salmon   | <input type="checkbox"/> Longfin smelt                        |
| <input type="checkbox"/> Delta smelt   | <input checked="" type="checkbox"/> Steelhead trout           |
| <input type="checkbox"/> Splittail   | <input type="checkbox"/> Striped bass                         |
| <input type="checkbox"/> Green sturgeon  | <input checked="" type="checkbox"/> All chinook species       |
| <input type="checkbox"/> White Sturgeon  | <input checked="" type="checkbox"/> All anadromous salmonids  |
| <input checked="" type="checkbox"/> Waterfowl and Shorebirds   | <input type="checkbox"/> American shad                        |
| <input checked="" type="checkbox"/> Migratory birds  |   |
| <input checked="" type="checkbox"/> Other listed T/E species: <u>Valley Elderberry Longhorn Beetle, Giant Garter Snake</u> |   |

Indicate the type of project (check only one box):

- |   |   |
|---|---|
| <input type="checkbox"/> Research/Monitoring                  | <input type="checkbox"/> Watershed Planning |
| <input type="checkbox"/> Pilot/Demo Project                   | <input type="checkbox"/> Education          |
| <input checked="" type="checkbox"/> Full-scale Implementation |   |

Is this a next-phase of an ongoing project? Yes \_\_\_\_\_ No x

Have you received funding from CALFED before? Yes \_\_\_\_\_ No x

If yes, list project title and CALFED number \_\_\_\_\_

Have you received funding from CVPIA before? Yes \_\_\_\_\_ No x

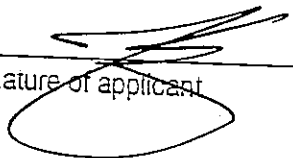
If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):  
\_\_\_\_\_

By signing below, the applicant declares the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

John Carlson

Printed name of applicant

  
Signature of applicant

## B. EXECUTIVE SUMMARY

**Title of Project:** *Understanding Natural Processes Through Active Riparian Restoration at Llano Seco Rancho, Butte County, California*

**Amount Requested:** \$1,810,690 for 3 years

**Applicant:** Sacramento River Partners  
261 East 3<sup>rd</sup> St., Chico, CA 95928

**Phone:** (530) 894-3474 **Fax:** (530) 894-2970

**Email:** [sacriver@c-zone.net](mailto:sacriver@c-zone.net)

**Primary Contact:** John Carlon

**Participants:** US Fish and Wildlife Service

Sacramento River Partners (SRP) is requesting \$1,810,690 from the CALFED Bay-Delta Program, and \$500,000 from CVPIA to actively reforest 400 acres of flood-prone farmland on the Llano Seco Unit of the U.S. Fish and Wildlife Sacramento River National Wildlife Refuge. Restoring this land will link together 2,000 contiguous acres of existing riparian forest and provide 8,500 linear feet of new shaded riverine aquatic (SRA) habitat (2,600 feet is rock revetment).

This project directly addresses four of the six CAL-FED ERP Goals (CAL-FED 2000):

Goal 1-**At Risk Species**, Goal 2-**Ecosystem Processes & Biotic Communities**,  
Goal 4-**Habitats**, Goal 5-**Non-native Invasive Species**

Key components of the project include using large-scale restoration techniques to actively plant woody species and native grass. The biological impacts of this restoration will be evaluated with a randomized block planting. Once the habitat is established, the vegetation-hydraulic interaction will be evaluated for floodwater conveyance and sedimentation. The size and geographic location of the project provide an outstanding opportunity to utilize active reforestation to answer natural process questions.

Implementing this project will establish critical riparian habitat within a three-year time frame. The long-term biological benefits include:

Provide rearing and foraging habitat for Winter-run, Spring-run, Fall-run, and Late-Fall run Chinook salmon.

Increase the area and quality of habitat for target species (steelhead trout, Swainson's hawk, western yellow-billed cuckoo, wood ducks, neotropical migratory birds, and valley elderberry longhorn beetles).

This will be a community-based restoration effort where local farmers, businesses and volunteers participate in active restoration. The project is supported by both neighboring landowners and virtually every local conservation organization. It is also consistent with the goals and objectives of the CALFED Ecosystem Restoration Program Plan, Central Valley Project Improvement Act, SB 1086, Sacramento River Wildlife Area Management Plan, North American Waterfowl Management Plan, Central Valley Habitat and Riparian habitat Joint Ventures, California Riparian Habitat Conservation Program, and the Sacramento River National Wildlife Refuge

## C. PROJECT DESCRIPTION

### 1. Statement of the Problem

#### a. Problem

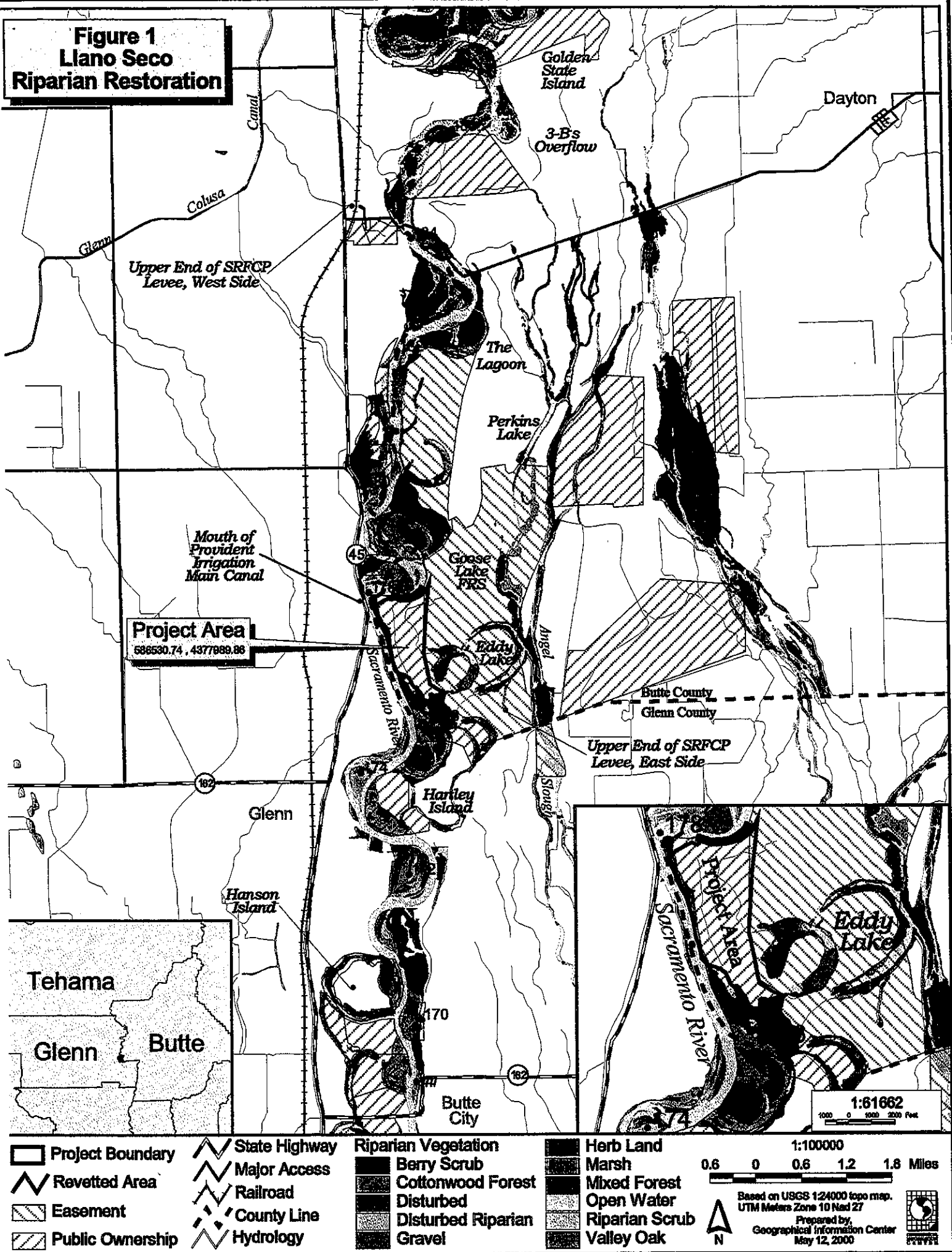
Less than 5% of the historical riparian forest along the Sacramento River remains today (DWR 1998). This catastrophic reduction in one of California's most biologically rich habitats (California Partners in Flight 1998) has contributed to the listing of several threatened and endangered species and the alteration of important ecosystem functions (CALFED 1999). Species such as the Valley Elderberry Longhorn Beetle, Swainson's hawk, western yellow-billed cuckoo, California yellow warbler, least Bell's vireo, steelhead trout, Chinook salmon and many others, depend on the Sacramento River (TNC 1998). Riparian forests provide important organic inputs to aquatic food chains (Gregory *et al.* 1991), improve water quality (Brooks *et al.* 1993), supply large woody debris (Sparks 1995), and provide critical shaded riverine aquatic (SRA) habitat (Schaffter *et al.* 1982). Established vegetation can also stabilize river channels, reduce erosion, and collect debris and sediment during flood events (Kondolf 1984, Brice 1977).

In 1991, FWS acquired the Llano Seco Unit (Figure 1) "to protect, enhance, and restore critical habitat and natural communities of native, resident, and migratory wildlife species" (FWS, 1992). The last of California's Mexican Land Grants to be divided, much of Llano Seco was cleared and converted to agriculture over time. However, land-use patterns and the complexity of the local terrain allowed the preservation of fragmented parcels of once-common habitats. This project provides an extraordinary opportunity to reestablish natural ecosystem processes over a large area and reconnect a restored riparian forest to a unique complex of existing habitats.

The site is fallow, flood-prone farmland that historically supported riparian forest and woodland. Only a small fraction of the site was not logged and remains forested (Figure 2). Despite the cessation of agriculture nine years ago and frequent overbank flows, only a few native species, such as mugwort (*Artemisia douglasiana*), mule fat (*Baccharis salicifolia*), and Mexican elderberry (*Sambucus mexicana*) grow on the site. Instead, non-native invasive species such as yellow star thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), and Johnson grass (*Sorghum halepense*), dominate the vegetation and competitively exclude native species. A vascular plant survey describes the vegetation as "weedy" and "impenetrable" (Oswald and Ahart, 1996). Native woody species are conspicuously absent, even in areas that border native riparian habitat. The rock revetment is mostly devoid of vegetation, except for several edible fig trees (*Ficus carica*) and fragments of giant reed (*Arundo donax*). Unvegetated revetment offer poor habitat for juvenile salmon compared to SRA areas (FWS, 1992). The lack of recruitment, after nearly a decade, under otherwise optimal conditions, suggests that non-native species may remain the dominant vegetation on the site, perhaps for decades (Figures 3 and 4).

Without intervention, non-native species will remain the dominant vegetation in these fallow agricultural areas. However, with the approach outlined in this proposal, the project can reestablish native species, reinitiate natural processes, and set succession on a more natural trajectory. Once established, restored native vegetation should have a high probability of

**Figure 1**  
**Llano Seco**  
**Riparian Restoration**



**Figure 2**  
**Aerial Photograph**  
**of Llano Seco**  
**Riparian Restoration**



 **Project Boundary**  
 **Revetted Area**

300 0 300 600 900 1200 Feet



Prepared by:  
Geographical Information Center  
May 12, 2000



Figure 3. Photographs of the Proposed Llano Seco Restoration Site

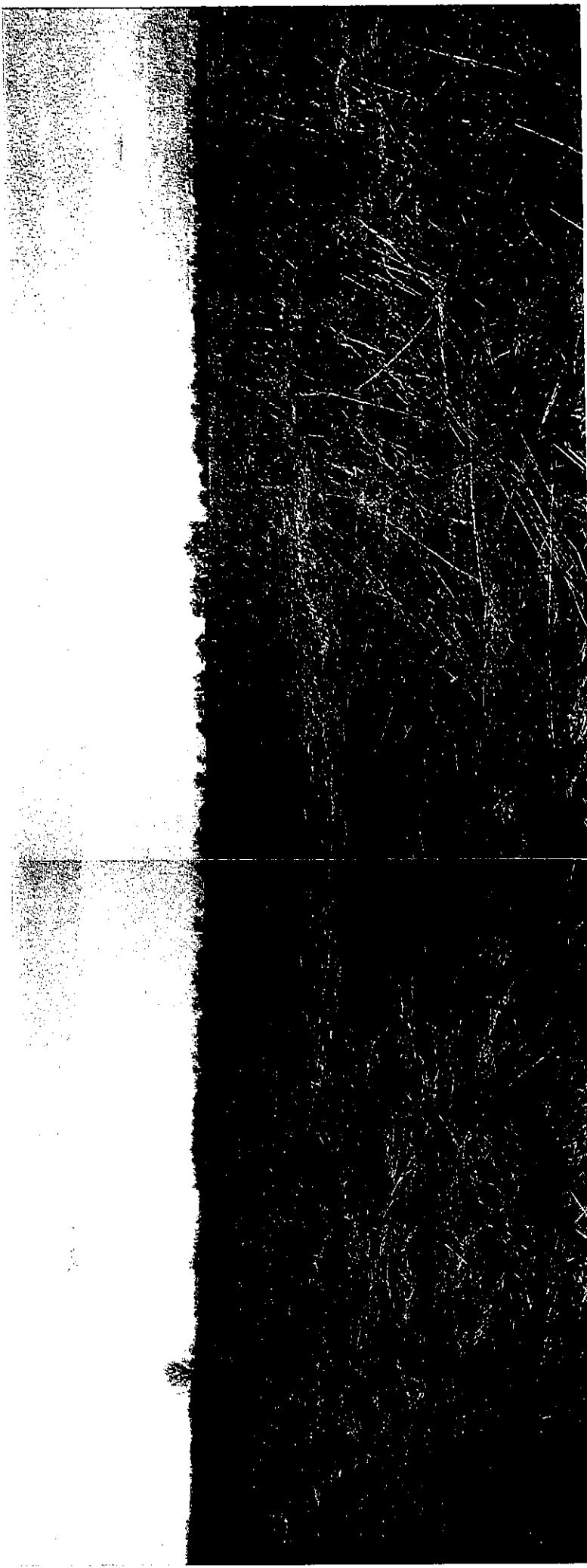


Figure 4. Photographs of the Proposed Llano Seco Restoration Site





unaided survival and provide long-term ecological benefits. Finally, within the restoration framework, we will incorporate an experimental design that provides a means of examining some of the critical relationships between riparian plants and physical and biological processes.

## **Objectives**

The objectives of this project are to:

- Restore 400 acres of fallow farmland (already owned by the FWS, but currently providing marginal habitat benefits) to riparian forest and woodland.
- Establish native vegetation to provide shaded riverine aquatic habitat on 8,500 linear feet of streambank (including 2,600 feet of revetted bank).
- Reduce habitat fragmentation. The project will reestablish a continuous riparian corridor along 10 miles of the Sacramento River (RM 174 to RM 184), reconnect the site to 1,500 acres of riparian forest, and enhances an important component of the 12,000 acres in conservation protection at Llano Seco.
- Develop an experimental design (within the restoration framework) that will provide baseline data and an approach to quantify the effects of vegetation composition and density on plant community dynamics (especially on natural native species recruitment), rodent populations, bird use, and erosional/depositional processes on the site.
- Retard erosion and slow velocities near the river. Based on an evaluation of the 1997 Corps of Engineers hydraulic model of the area (MBK Engineers 2000, please see Exhibit 1), the project would not effect flood system capacity or flow distribution. The model indicates that only 10 % of overbank flow is included in the restoration area. In addition, the proposed project will help stabilize the flow spilt between the river and Butte Basin, and maintain the existing flow conditions at the Princeton, Cordora, Glenn and Provident Irrigation Districts pumping plant (MBK Engineers, 2000).
- Demonstrate the potential of native grasses to control non-native exotic species and provide habitat.
- Engage the local community and businesses in the restoration process and work with educational institutions to provide hands on learning opportunities.

### **b. Conceptual Model**

#### ***Location determines the influence of physical and biological factors***

Riparian areas can be divided into three zones based on elevational differences: low, mid, and high terrace. Physical factors control most of the physical framework within which the biological community functions (Pringle *et al.* 1988). However, as we move away from the main channel and from low to high terraces, the magnitude, frequency, and duration of floods diminish (Gregory *et al.* 1991) and biological factors become relatively more important in influencing the biological community (Johnson *et al.* 1995). Although river systems are dynamic, higher terraces sites are influenced more by biological factors than overbank flows.

#### ***Status of native vegetation on the site***

The current biological conditions of the site have prevented the establishment of native plant species. The site once supported a complex mosaic of mixed riparian forest and valley oak woodland, before it was cleared in the 1970's. Despite the cessation of agriculture (now nearly ten years ago), frequent flood events, good soil, and nearby seed sources, little native

recruitment has occurred and non-native invasive species dominate the site. While historical processes allowed the establishment of riparian forest, current processes have altered the successional equation on this particular site to favor undesirable non-native species and will continue to do so, perhaps for decades.

#### ***Biological factors influence native plant recruitment***

Because the project site is located in the mid to high terrace zones, biological factors such as plant competition for sunlight and moisture, the effects of rodents, and browse pressure from herbivores are relatively more important factors than they are in the lower terraces. While data on other species are limited, several studies on valley oak (*Quercus lobata*) from around the state support our model. For example, several studies (Griffin 1971, 1976, Knudsen 1984, McCreary 1989, and many others) show that a lack of viable acorns is not the major cause of poor oak regeneration, but the combination of competition from non-native species, browse pressure, and high rodent population contribute to poor oak regeneration. These factors may exert a similar influence on the natural regeneration of other species on the site.

#### ***Non-native species compete with native species for water and sunlight***

Flood events over the past 10 years; have not displaced the non-native species that dominate the site (Figure 3). Bull thistle (*Cirsium vulgare*), star thistle (*Centaurea solstitialis*), annual ryegrass (*Lolium multiflorum*), mustard species (*Brassica* spp.), dominate the drier areas of the site while weeds such as Johnson grass (*Sorghum halepense*) dominate the wetter areas. As winter floodwaters recede, the non-natives quickly recolonize any bare areas from seed or from buried plants. These weeds grow vigorously on the site's nutrient rich soil; as of 5/1/00 some weeds on the site are greater than 5 feet tall. These weeds provide compete fiercely for sun and moisture and competitively exclude native species. By late spring, site soils are extremely dry and may remain so, late into the year. As might be expected, several studies show that valley oak seedling survival is greatly increased in plots where plant competition is minimized (for example, Adams et al 1992, Danielson and Halvorson 1991).

#### ***Rodents eat seeds and girdle young plants***

The impenetrable vegetation on the site (Oswald and Ahart, 1996) provides ideal habitat for rodents and limits the ability of predators to control rodent populations. Rodents can influence oak establishment at several stages. Small rodents (especially mice and voles) are the main acorn predators (Knudsen 1984) and can collect between 44-100% of acorns (Griffin 1980). Rodents can girdle the bark of young oak saplings, cottonwood, elderberry, and other species. Although oaks and elderberries may stump sprout, girdling can kill young trees. For example, long-term studies (11 years) indicate that unprotected valley oaks could not survive rodent herbivory, while 38% of protected plants survived (Griffin, 1976). Interestingly, the conversion of the site to native species may actually lessen the effects of rodents on future plant recruitment. A survey of rodents on the San Joaquin River National Wildlife refuge found much higher relative populations of mice and voles in fallow agricultural fields in comparison to areas with native vegetation (Chouinard et al 1999).

#### ***Larger browsers limit the growth of native species***

Valley oak seedlings are browsed upon by a number of insects, rabbits, and deer (Griffin 1971). Although this herbivory may not result in mortality, it maintains the plant as a shrub

for long periods of time. Griffin (1971) observed that 20 years passed before a group of valley oaks grew above the browse line. We have observed sometimes severe herbivory on a number of riparian species on the Sacramento River. With the large population of deer and rabbits at Llano Seco, this may be an important factor in establishing viable riparian trees on the site. The planting of woody species will lessen the impact of herbivores on individual plants and we can use plant protectors and other means to limit the impact of browsers.

#### ***Natural recruitment on lower terraces***

We should note that natural recruitment of native species is occurring in areas near the site, but there are important differences between the project site and these lower lying areas. These low terrace areas are located in the active channel, and have experienced recent deposition. A few saplings of sandbar willow (*Salix exigua*) and Fremont cottonwood (*Populus fremontii*) grow in some of these areas. Incidentally, clumps of giant reed (*Arundo donax*) also are becoming established. Because these areas are 10 to 15 feet lower in elevation than the project site, they experience greater magnitudes, frequencies, and durations of flooding than the higher terraces. Flooding and its associated processes have in turn created favorable conditions that aid native species recruitment. Fremont cottonwood seeds often germinate on recently deposited sediment as floodwaters recede. The lower terraces have ample water, bare soil, minimal weed competition, and little, if any, rodent pressure in comparison to the higher terraces (which often dry out before the cottonwood seeds are released). Mature Fremont cottonwood trees and other species could grow on the project site, but the lessened influence of hydrological processes, likely prevent them from becoming established.

#### ***Role of restoration activities on long-term processes***

Given our experience with other restoration projects and knowledge of the site, we expect trees on the site to approach 30 feet at the end of three years. At the end of three years, the project will begin to provide measurable benefits. Increases in vegetative structure, plant diversity, and biomass are likely to increase bird usage, SRA habitat, and connectivity with the riparian corridor. As the forest grows, it will enhance ecosystem processes and provide high quality organic inputs for aquatic food chains. The project will generate data on some of the key uncertainties involving the interaction of riparian vegetation ecological processes. These data will enhance the success of future projects. Furthermore, these ecological benefits will not alter the “capacity of the flood system or the flow distribution between the Butte Basin and the Sacramento River” (MBK Engineers, 2000).

Riparian restoration will essentially “jump start” succession on the site. Our cultural practices reduce plant competition from non-native species, and limit the negative effects of predation and herbivory. Our planting design maintains the few natives already on the site, and as the plants grow, the microclimate of the site will begin to favor native species. Therefore, restoration will alter the successional trajectory from one that perpetually favors non-native invasive species to one that allows native species to recolonize the site. For example, surface sown acorns in a woodland plot exhibited a 95-99% germination rate in comparison to 0% in a more open savanna plot (Griffin 1971). In summary, the site will be converted from an open, often xeric, non-native dominated plain to a more mesic complex mosaic of open and

closed canopy forest and woodland. This conversion will provide the seed source and greater microclimate variability for the long-term succession of native species.

#### **c. Hypotheses Being Tested**

This project revolves around the primary hypothesis that active restoration will increase shaded riverine aquatic habitat, reduce habitat fragmentation, restore complex riparian habitat, decrease the dominance of non-native plant species, increase available nesting sites and vegetative cover for neotropical birds, and enhance ecological processes (especially the succession of native plant species). Within the implementation of the project, we will develop a randomized block experiment to examine some of the biological and physical factors described in the conceptual site model. We will examine the role of restored native vegetation to changes in organic matter production (important for aquatic food chains), plant dominance and recruitment, microclimate, rodent populations, and erosional and depositional processes. We discuss the means to collect these data in the monitoring section.

#### **d. Adaptive Management**

We currently incorporate an adaptive management framework into all our projects. We have a number of systems that help us to continually examine and improve project implementation. The methods for doing this include the following:

- Transfer knowledge and technology from other projects. Last year, our organization has restored 283 acres in the same Ecozone as the proposed project. This knowledge provides us with insight into the successful implementation of the proposed project.
- Learn from the monitoring information. Every individual plant in our design is recorded by species and location within a database (which lends itself to GIS analysis). This allows us to recognize patterns (e.g. survival of a single species in a certain soil type) that can be used to better direct management of the site.
- Document activities. For example, our field managers keep weekly report of activities or observations at each site. These records, combined with the monitoring information helps us to better direct future activities at a site.
- Conduct experiments. For example, a recent experiment with cottonwood determined that we could substantially improve (by over 40%) the success of direct cuttings by using a method that required less material and took less effort to plant (SRP unpublished data).

#### **e. Educational Objectives**

- SRP will host a minimum of 6 work and/or field days for interested parties and local community members over the life of the project. Several organizations, such as the Audubon Society, California Native Plant Society, and Chico Paddle Heads, have expressed an interest in participating.
- Host media field days to inform the public on the benefits of riparian restoration.
- Collaborate with the Glenn County Office of Education, Butte College, and California State University, Chico to provide hands on learning opportunities (see attached letters).

## **Proposed Scope of Work**

### **a. Location/Geographic Boundaries of the Project**

The project is part of the Llano Seco Unit of the Sacramento River National Wildlife Refuge (River Mile 176 R and 178.5R) and is located within the 100-year flood plain of the Sacramento River in Butte and Glenn Counties. The property lies within the Sacramento River Conservation Area as defined under SB 1086, in the Chico Landing to Colusa reach (Ecozone 3.3). Figure 1 shows the site coordinates of the site. The proposed project area is strategically located between existing riparian forests and would reestablish a continuous riparian corridor along 10 miles of the Sacramento River.

### **b. Approach**

This proposed project is a well-defined task: the revegetation of 400 contiguous acres of riparian forest and 8,500 linear feet of streambank (including 2,600 linear feet of revetted bank) of land already in the public trust. The project will use state-of-the-art production restoration techniques to enable rapid and efficient development of habitat, engage local farmers and businesses in ecological restoration, and demonstrate cost-effectiveness for future restoration projects. We will apply scientific principles and knowledge to help guide the project and assess project progress. One unique aspect of this project is the experiment to examine the role of restoration plantings to various physical and biological processes. Figure 5 summarizes some of the steps required to achieve the project goals.

### **Tasks for the Implementation of Llano Seco Restoration**

*Hydrologic Study:* Recalibrate the existing Army Corps hydraulic model to quantify the effect of riparian vegetation on site (see Exhibit 1 for a preliminary evaluation).

*Site Assessment/Restoration Plan:* Develop planting composition and density patterns based on the biologic, edaphic (soil), historic, and hydrologic conditions at the site. Specify the community types to be restored, and the planting, irrigation, and weed control measures for the site. We will use 12-20 native trees, shrubs, lianas, and herbaceous plants.

*Plant Propagation:* SRP employees and volunteers will collect plant material from the surrounding area. Local nurseries will grow plants that cannot be directly planted.

*Field Survey:* Establish the site's permanent reference points; these can be used later for GIS mapping.

*Field Planting:* Prepare field and plant natives in the main field.

*Revetment Planting:* Plant willow cuttings between the rocks in the revetment portion of the bank to allow for revegetation while minimizing the potential for damage to the revetment.

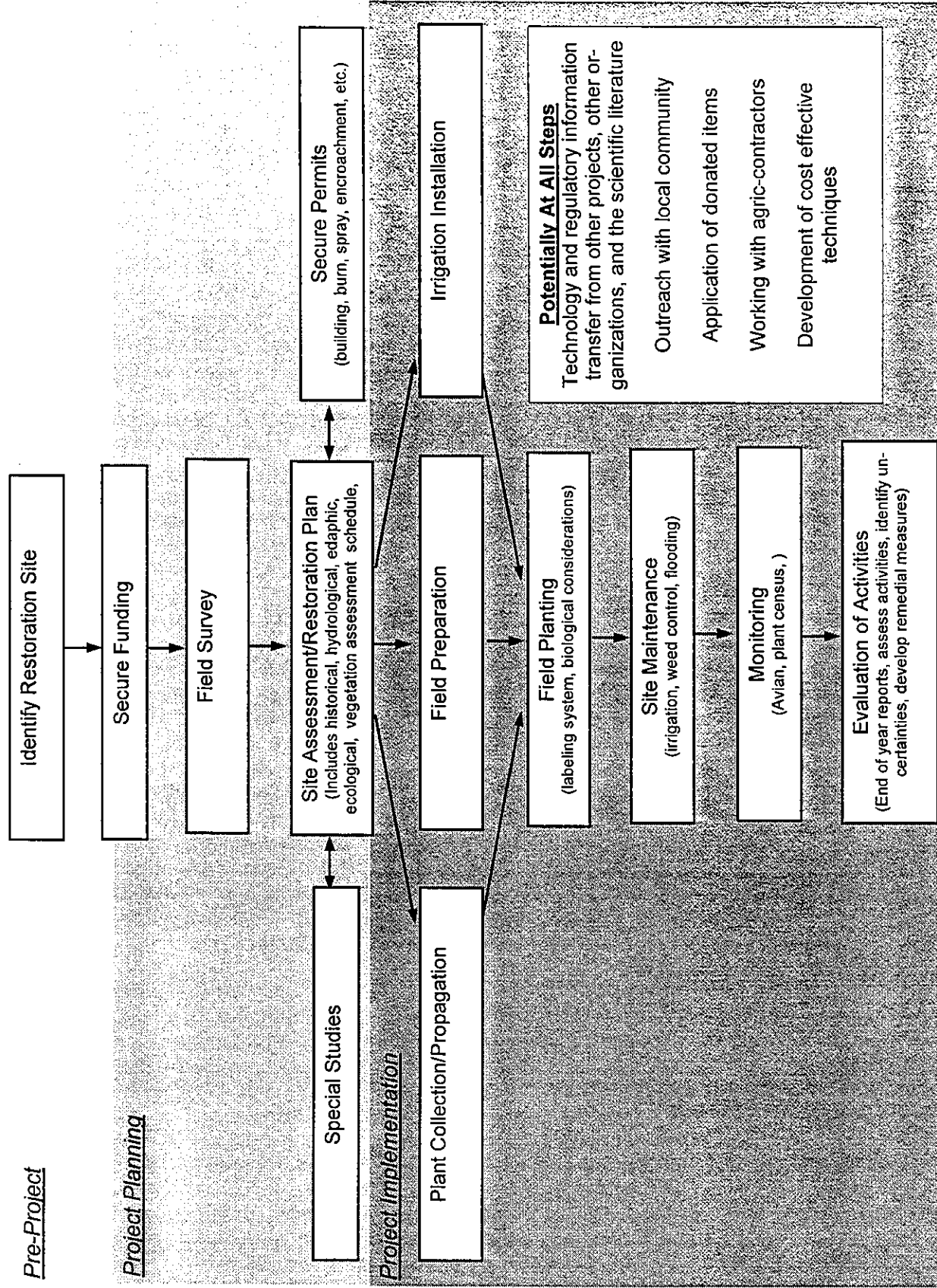
*Native Grass Planting:* Plant native grass species in appropriate areas to demonstrate their potential as components of riparian and grassland restoration projects.

*Irrigation Installation:* Develop, install, and eventually decommission the irrigation system.

*Maintenance:* Maintain the irrigation system and other associated tasks.

*Weed Control:* Control weeds through mowing, spraying or other appropriate.

**Sacramento River Partners**  
**Figure 5. Summary of Restoration Process**



*Monitoring:* Measure project performance (including a survival census of plants).

*Randomized Block Experiments:* Measure the effects of various types of restored vegetation on selected 1) physical and 2) biological processes.

*Outreach:* Develop a plan and implement public outreach, such as project field days and informational videos.

*Project Management:* SRP will manage and administer the project.

### **c. Monitoring and Assessment Plan**

The project will develop a monitoring program that quantifies the short-term success of the project (3 years), yet meets multiple long-term objectives (Table 1). Meaningful long-term data will most likely need to be collected after the project cycle, but this project will develop the experimental design, data collection methods, and baseline data necessary to collect this information. Because our planting design allows use to document individual plants we can gain considerable insight into planting success as a function of soil type, hydrology, and other factors.

One unique feature of the project is that the physical data collected for the planting design will form a framework for answering long-term questions regarding the interaction of vegetation and natural processes. Such information is critical for effective implementation of future revegetation plans. We will vary treatments by planting different species composition and density. The randomized block experiment will allow us to statistically detect differences, if any, in rodent numbers (using an array of methods), native and non native plant recruitment, bird usage, mammal herbivory, and production of organic matter. Rodent numbers may also impact the success of ground nesting birds, and our efforts will complement the with PRBO's data collection efforts. In addition, we will examine potential physical changes such as microclimate differences and the ability for vegetation to trap sediment. Data from this study could be used to increase our understanding of riparian vegetation and flood plain processes. Products from this task include monitoring reports and a written report describing the methodology and baseline information on the experimental design incorporated into the project.

### **d. Data Handling and Storage**

The initial planting design and data will be formulated on a dBase database. Further data manipulations will be entered, analyzed, and stored on computer in Microsoft Excel worksheets. These initial data will be housed at the SRP office in Chico, California. Summary data and findings will be publicly available from reports written by SRP for FWS. All reports will be archived at the Sacramento River National Wildlife Refuge office in Willows, California.

### **e. Expected Products/Outcomes**

This restoration project will produce approximately 400 acres of riparian woodland and forest habitat; this includes 8,500 linear feet of SRA habitat. SRP will guarantee (barring acts of God) 70% survivorship at the end of 3 years. In addition, the following deliverables and

**Table 1. Monitoring and Data Collection Information for the Llano Seco Riparian Restoration Project**

<b>Question to Be Evaluated</b>	<b>Monitoring Parameters</b>	<b>Data Evaluation Approach</b>	<b>Data Priority</b>
<b>Implementation Success</b>	Initiation and completion of tasks	Timeline is followed	High
<b>Planting success</b>	Assess end of season and after planting plant survivorship, document growth in year 3	Use a dBase IV program (developed by SRP) to design the planting scheme, describe the location and species of every planted tree or shrub, and census the plants for survival, and growth, establish photo points across the site	High
<b>Shaded riverine aquatic habitat</b>	Linear cover along bank	Percent of project bank-length with SRA	High
<b>Native grass</b>	Percent dominance, frequency, occurrence	Collect random herbaceous plot samples from pilot plots	Medium
<b>Restore complex riparian vegetation</b>	Survival measured as density of each species; herbs as cover of each	Comparisons by soil types and topographic position	High
<b>Sediment and woody debris deposition, channel movement, baseline topography</b>	Permanent surveyed transects of elevations, maps of areas covered by debris masses, survey site	Collect baseline data for future comparisons, provide data in a form useable for Geographic Information Systems	Low, but baseline info is important
<b>Avian use monitoring</b>	Point-counts and nest surveys, species richness and numbers of individuals	Collect data along permanent transects and note vegetation structure around each nest.	High
<b>Herbivory</b>	Animal utilization	Qualitative data collection using US Forest Service methodology	Low
<b>Rodent populations</b>	Numbers and species composition	Comparison between treatments using an array of traps	Medium
<b>Successional processes</b>	Cover by weed species, document recruitment of native species	Comparison between treatments, note occurrence of species, establish protocol for future study	Medium
<b>Organic matter output</b>	Biomass and carbon to nitrogen ratios	Comparison between treatments	Medium
<b>Microclimate</b>	Temperature, humidity, light intensity, and wind velocity	Comparison between treatments	Medium



reports will also be produced: a hydrologic study, site assessment, restoration plan, monitoring plan and reports, PRBO annual bird surveys and reports, report from the randomized block design (will include baseline data, methods, and any findings on the relationship between vegetation the parameters examined), quarterly reports, annual progress reports, and a final report detailing project performance.

#### **f. Work Schedule**

The project has a three-year timeline for completion (Table 2). The project is already divided as we are also requesting \$500,000 in funding from the CVPLA. If the project cannot be funded completely, the proposed project could be broken into 2 separate 200-acre projects. The revetment project is not a stand-alone project, but could be considered a separate optional phase. However, dividing the project increases costs per acre considerably, because all of the assessment, planning, and management tasks listed for the large project would then have to be performed separately for both of the smaller projects (see section F. Budget).

#### **g. Feasibility**

All of the tasks listed in this proposal have had proven success on the Sacramento River. The U. S. Fish and Wildlife Service in partnership with non-profit conservation groups have acquired over 12,000 acres of land along the river and actively converted over 1,100 of these flood-prone acres into riparian habitat. Sacramento River Partners restored 283 acres of land last year and currently manages over 800 acres of refuge cropland. Active reforestation regularly exceeded 75% tree survivorship at the end of three-year establishment periods. We anticipate that the site's good soil and proximity to water will allow restored vegetation to grow well under a variety of weather and hydrological conditions.

This project can be implemented as soon as funding becomes available. It complies with NEPA and CEQA requirements and will not require any additional environmental compliance documents. The revetment restoration may require additional permits from Butte County and/or the US Army Corps of Engineers. These permits will be obtained before any work begins.



## **D. APPLICABILITY TO CALFED ERP GOALS AND IMPLEMENTATION PLAN AND CVPIA PRIORITIES**

### **1. ERP Goals and CVPIA Priorities**

This project directly addresses four of the ERP Goals (CALFED 2000): Goal 1 (At Risk Species), Goal 2 (Ecosystem Processes and Biotic Communities), Goal 4 (Habitats), and Goal 5 (Non-native Invasive Species) Specific objectives and targets from the ERP that this project addresses are listed in Table 3. CVPIA priorities are listed in Table 4.

### **Relationship to Other Ecosystem Restoration Projects**

The proposed Llano Seco restoration proposal builds on existing conservation programs and is closely linked to the following projects:

#### **Riparian Reforestation**

FWS – Ord Bend (100 acres), Llano Seco Tract I (65 acres) CALFED Proposal # 97-N03 \$1,292,500 (300 acres), Sul Norte (400 acres), Packer Island (120 acres)

U.S. Army Corp of Engineers and Department of Water Resources – Murphy Slough Habitat Restoration Project (300 acres), Murray, Burns and Kienlen Site #29 (90 acres)

Wildlife Conservation Board and California Department of Fish and Game – Riparian restoration at River Mile 166.5 (27 acres) and River Mile 169.5 (67 acres)

Private Restoration Projects – Parrott Investment Corporation and The Nature Conservancy (40 acres), CSU, Chico and The Nature Conservancy at Phelan Island (60 acres)

#### **Princeton-Codora-Glenn and Provident Irrigation District's Anadromous Fish Screen Project**

The proposed project will decelerate surface and bank erosion across the channel from the recently constructed fish screens (See Exhibit 1, MBK Engineers 2000).

#### **SB1086**

We submitted the same basic proposal last year to the Advisory Council, which found that the project was compatible with the goals of SB1086 (see attached letter). No advisory council meeting was held this year.

### **3. System-wide Ecosystem Benefits**

With restoration, the site will fit into a unique mosaic of freshwater wetland, grassland, slough, and riparian forest habitats in the Llano Seco Unit. The project's strategic location provides benefits on multiple levels.

#### **Primary Benefits**

##### Ecosystem Processes

- Reduce fragmentation, increase vegetative cover, and increase the connectivity of the riparian corridor along the Sacramento River (Figure 1).

- Initiate natural forest succession within the floodplain by controlling NIS and reintroducing native species.
- Increase inputs of particulate organic matter into the river, which would increase the productivity of aquatic food chains, including that of the Bay-Delta ecosystem.
- Improve water quality through the creation of a filter strip between adjoining agricultural fields and the river.
- Provide a forested area that is "sufficiently large (>50-100 acres) to create air convection currents, which will cool adjacent river water temperatures." (CALFED, 1999).

#### Habitats

- Restore 400 acres of riparian forest, reestablishing a 2000-acre continuous riparian corridor along 10 miles of the Sacramento River (from river mile 174 to river mile 184). This project in conjunction with proposed private revegetation to the east of the site will create a corridor between Angel Slough and the Sacramento River.
- Vegetate 8,500 linear feet of riverbank that will provide a continual supply of SRA habitat for rearing and foraging habitat for all races of Chinook salmon.
- Provides critical habitat and conditions for anadromous fish, the neotropical bird guild, and other organisms.
- Provide ecological benefits in a short time. For example, benefits to neotropical migrants may be seen within three years of restoration (Geupel *et al.*, 1997).

#### Species

- Benefits a number of key species including: Chinook salmon, steelhead trout, native Cyprinids, Swainson's hawks, western yellow billed cuckoos, wood ducks, the neotropical bird guild, and valley elderberry longhorn beetles.

#### **Secondary Benefits**

- Enhance the capacity of the Llano Seco Unit to attract various wildlife species.
- Increase the propagule flow of native species to currently unrestored conservation easement areas (which may facilitate the natural regeneration of these areas).
- Transform public land from low to high quality habitat, which will make future acquisitions more acceptable to the local community.
- Demonstrates the relationship between restored vegetation and geomorphology thus improving the design and hydraulic predictability of future restoration projects.

#### **Third Party Benefits**

- Reduce flood damage to downstream structures by decelerating flood velocities and capturing floating debris and sediment.
- Provide data on the feasibility of using riparian vegetation to provide non-structural flood control benefits.
- Decrease the spread of NIS to other properties.

Table 3. Strategic Objectives and Targets from the ERP (February 1999) that the Proposed Project Addresses.

<b>Ecological Process Visions</b>
<p><i>Strategic Plan Goal (SPG) 2, Objective (Obj) 4 (p. 63):</i> To create flow and temperature regimes in regulated rivers that favor native aquatic species.</p> <p><i>SPG 2, Obj 8 (p. 80):</i> To increase the extent of freely meandering reaches and other pre-1850 river channel forms. <i>SPG 2, Obj 2 (p. 100):</i> To increase estuarine productivity.</p>
<b>Habitat Visions</b>
<p><i>SPG 4, Obj 2 (p. 151):</i> To increase the area of riparian and riverine aquatic habitat and an integrated component of restoring large expanses of all major historical habitats in the Central Valley and its rivers.</p> <p><i>SPG 4, Obj 2 (p. 158):</i> To protect existing and restore and increase the quality of freshwater fish habitat as an integral component of restoring large expanses of all major historical habitat types in the Central Valley and its rivers.</p> <p><i>SPG 4, Obj 2 (p. 162):</i> To protect existing and restore and increase the quality of essential fish habitat as an integrated component of restoring large expanses of all major historical habitat types in the Central Valley and its rivers.</p>
<b>Species and Species Group Visions</b>
<p><b>Priority Group I</b></p> <p><i>SPG 1, Obj 2, 3, 4, 5 (p. 220-222) Winter-run, Spring-Run, Late Fall-Run, Fall-Run Chinook Salmon:</i> To restore self-sustaining Chinook salmon to Central Valley streams and the Bay-Delta estuary.</p> <p><i>SPG 1, Obj 6 (p.229) Steelhead trout:</i> To restore self-sustaining Central Valley steelhead to Central Valley streams and the Bay-Delta estuary.</p>
<p><b>Priority Group II</b></p> <p><i>SPG 1, Obj 1 (p.241): Lamprey Family:</i> To restore anadromous lampreys dependent on the Delta and Suisun Bay. <i>SPG 1, Obj 4 (p.252): Swainson's Hawk:</i> To restore Swainson's hawk populations.</p> <p><i>SPG, Obj (not specified) (p. 287): Valley Elderberry Longhorn Beetle:</i> To increase and maintain valley elderberry longhorn beetle habitat</p>
<p><b>Priority Group III</b></p> <p><i>SPG 1, Obj 10 (p. 304), Western Yellow-Billed Cuckoo:</i> To restore yellow-billed cuckoo throughout its historical range in the Central Valley.</p> <p><i>SPG 1, Obj 12 (p. 307), Bank Swallow:</i> To increase the number of breeding colonies of bank swallow in the Central Valley.</p> <p><i>SPG 1, Obj 8 (p. 312), Least Bell's Vireo:</i> To restore least Bell's vireo to representative habitats throughout its former range.</p> <p><i>SPG 1, Obj 7 (p. 314), California Yellow Warbler:</i> To restore and protect habitats used by neotropical migrant birds for breeding and foraging in the Central Valley.</p>
<p><b>Priority Group IV</b></p> <p><i>SPG 1, Obj 1 (p. 347), Native Resident Fishes:</i> To reverse the decline of native resident fishes.</p> <p><i>SPG 1, Obj 3 (p. 352), Aquatic Foodweb Organisms:</i> To restore assemblages of planktonic organisms in the Delta and Suisun Bay to states of increased abundance and greater predictability in composition.</p> <p><i>SPG 1, Obj 7 (p. 363), Neotropical Migrant Bird Guild:</i> To restore and protect habitats used by neotropical migrant birds for breeding and foraging in the Bay-Delta watershed.</p> <p><i>SPG not specified (p. 366), Upland Game:</i> To maintain healthy populations and restore habitats that promote the expansion of populations at levels that can support both consumptive and nonconsumptive uses and provide additional opportunities for those uses.</p>
<b>Stressors</b>
<p><i>SPG 5, Obj 9 (p. 478):</i> To develop focused control efforts on those introduced species where control is most feasible and of greatest benefit.</p>

Table 4. Considerations for Ranking Specific Actions for CVPIA that the Proposed project Addresses.

<b>Biological Resource Considerations</b>
<p><i>Magnitude of Benefits to Biological Resources:</i> This project will restore 8,500 linear feet of much needed SRA and other wildlife habitat and connect existing riparian forest into a contiguous 2,000 acre block.</p> <p><i>Benefits to Special Status Species:</i> Valley Elderberry Beetle, Giant Garter Snakes, Chinook Salmon, Steelhead, Yellow-billed Cuckoo, California Yellow Warbler, and Swainson's Hawk will all benefit from this project.</p> <p><i>Ecosystem or Multiple Species Benefits:</i> In addition to the species listed above, the project will benefit other anadromous fish and neotropical migratory birds.</p> <p><i>Restoration of Natural Habitats and Habitat Values:</i> The site will be transformed from abandoned agricultural field vegetated almost exclusively with NIS (low habitat value) to cottonwood-willow and mixed riparian forest (high habitat value).</p> <p><i>Long-term Benefits:</i> Since the area will be indefinitely managed as a wildlife sanctuary by FWS, the benefits will be ongoing.</p> <p><i>Immediate Benefits:</i> The area will improve as wildlife habitat within the first three years.</p> <p><i>Effectiveness:</i> SRP is already implementing the restoration techniques for the proposed project at several other sites within the same Ecozone.</p> <p><i>Studies and Investigations:</i> The proposed project is a full-scale implementation. Sections of the site will be set aside for experimentation.</p>
<b>Implementation Considerations</b>
<p><i>Continuing/Ongoing Efforts:</i> The proposed project is part of an ongoing effort between SRP and FWS to restore native habitats to the Sacramento River, including the Sacramento National Wildlife Refuge. Other restorations on Llano Seco and other portions of the refuge are already being implemented.</p> <p><i>Technical Feasibility:</i> The project is feasible as large-scale agricultural/restoration techniques will be used to reforest the site.</p> <p><i>Timeliness:</i> SRP is "ready to go" on this project as soon as funding becomes available. We have a proven record of implementing our projects on time and within budget.</p> <p><i>Partnerships/Opportunities:</i> The project will be implemented as a cooperative agreement between SRP and FWS.</p> <p><i>"Implementability":</i> All assessments and permits are in place to implement the majority of this project. The revetment restoration will require another permit from the Army Corps of Engineers and the Bureau of Reclamation.</p> <p><i>Public Support:</i> We are supported by many local groups including the California Native Plant Society, Chico Paddleheads, CSU-Chico, Butte College, the Audubon Society, and others. In addition, neighboring landowners also support the project.</p> <p><i>Compatibility:</i> The project is compatible with SB1086, the Sacramento River Wildlife Area Management Plan, the National Fish and Wildlife Foundation, the North American Waterfowl Management Plan, the Central Valley Habitat and Riparian Joint Ventures, and the California Riparian Habitat Conservation Program.</p>
<b>Economic Considerations</b>
<p><i>Economic Effects:</i> The project should have a positive economic effect on the fishing industry by supporting populations of salmon, steelhead, and other species.</p> <p><i>Project Costs:</i> The use of large-scale restoration techniques will keep the costs of this project to \$4000/acre if the entire project is funded.</p> <p><i>Impact on the Water Supply:</i> The affects of this project will be negligible on the water supply. The restoration will not change the flow of the river. The irrigation will be done using highly efficient means (T-tape) and will only be carried out for 3 years.</p> <p><i>Impact to Water Quality:</i> The project should improve water quality; the riparian vegetation will serve as a "filter" to remove pollutants from runoff water.</p>

## **E. QUALIFICATIONS**

Sacramento River Partners (SRP) is a non-profit organization dedicated to the protection and restoration of the natural resources of the Sacramento River. Taking a community based approach the organization builds partnerships with farmers, landowners, other non-profit organizations, and government agencies to ensure that projects succeed with local support. The organization has a proven track record of efficiently and cost-effectively implementing riparian restoration projects.

Since its incorporation in May 1998 the organization has secured \$2 million in federal, state, local, and private money for conservation. Since its inception, SRP has planted native riparian species on 283 acres of flood-prone fallow agricultural land along the Sacramento River for both the Wildlife Conservation Board and USFWS. The organization is also managing 800 acres of agency owned land that is slated for later restoration. Prominent projects include restoring a 100-acre riparian forest parcel at Ord Bend in Glenn County, and a 65-acre woodland parcel on the Llano Seco Rancho. Most recently, SRP was awarded a \$420,000 contract from the Glenn-Colusa Irrigation District to restore 25 acres of land that includes 3,400 feet of riverbank habitat. SRP is a team of experienced professionals who can carry out this project in an efficient and ecologically sound manner:

**John Carlon** will serve as the Project Director for the proposed project. He obtained a B.S. in agronomy and horticulture from C.S.U., Chico, and a M.S. in International Agricultural Development from C.S.U., San Luis Obispo. A long-time resident of the North Valley, he currently operates an organic blueberry farm in Forest Ranch, and is a member of the University of California's Biologically Integrated Farming Systems Advisory Board. Mr. Carlon has been engaged in land protection and riparian restoration on the Sacramento River for the last eight years - six years with The Nature Conservancy's Sacramento River Project and the last two years as the Project Director for SRP. He has had direct involvement in the acquisition and restoration of over 1000 acres along the river. Mr. Carlon will be responsible for project management and grant administration.

**Barnard Flynn** will serve as the Director of Field Operations. He has a Bachelor's degree from Harvard and a Master's from C.S.U., Chico. Mr. Flynn also has 18 years of experience as a farm manager, currently he co-owner of Shasta View Farms in Gerber, California, a 600-acre almond and prune orchard. He has successfully implemented over 500 acres of riparian restoration along the Sacramento River during the last five years. In the past 10 years, between natives and orchards, he has planted 900 acres of trees. He has developed several innovative restoration practices including a software program that facilitates field planting and monitoring of species survival. Mr. Flynn will provide general administrative support to the project.

**Daniel Efseaff** will serve as the Restoration Manager/Ecologist for the proposed project. Mr. Efseaff received a B.S. in Biology from U.C. Davis, and an M.S. in Biology from C.S.U., Chico, where his research focused on the interaction of riparian species with soil types. He has broad experience working for natural resource agencies, consulting firms, and research institutions, and has developed sampling programs for ecological risk assessments, conducted

botanical surveys, and recommended planting designs for restoration projects. Currently, he supervises the implementation of 4 separate restoration projects similar to the current proposal. Mr. Efseaff will be responsible for all site assessments and scientific monitoring on the project.

**Samantha Mackey Hillaire** will be involved with the plant propagation and monitoring aspects of the project. She received a B.S. in Biology from Duke University, and an M.S. in Botany from C.S.U., Chico. Previously, Ms. Hillaire monitored woody species for a long-term forest regeneration project in the Duke Forest. She has been involved in several other botanical projects, including a watershed vegetation inventory on the Shasta-Trinity Forest for the US Forest Service. She serves on the board of the local chapter of California Native Plant Society, and the publications committee of the C.S.U., Chico herbarium. A recent graduate, Ms. Hillaire has worked for SRP for the past year.

**Sacramento National Wildlife Refuge Staff** will be key members of this project's team. Ramon Vega will be responsible for project oversight and Joe Silveria will be the acting refuge biologist responsible for planning and monitoring oversight.

Complementing Sacramento River Partners and USFWS staff will be the following experts in riparian restoration; Dr. Tom Griggs - California State University, Chico Research Foundation (Biological), Murray, Burns and Kienlen – Consulting Civil Engineers (Hydraulic), the Geographic Information Center (GIS & mapping), Point Reyes Bird Observatory (Avian monitoring).

There are no expected conflicts of interest or problems in completing this work within the proposed timeline.

## **F. COST**

### **1. Budget**

The total amount requested for this project is \$1,810,690 over three years. We request \$500,000 from CVPIA for bankside restoration including the revetment; the remaining \$1,310,690 we request from CALFED. Table 5 provides detail on the specific costs of the proposed project. Table 6 provides a summary of the project.

The complete project will provide the greatest benefits because of economies of scale (for planning, irrigation, weed control, and site preparation) and the creation of a large contiguous area of riparian forest. If the project cannot be funded completely, funding for a minimum of 200 acres is recommended (Table 7). The revegetation of the revetment area is not a stand-alone project, but can be considered a separable task.

### **2. Cost-Sharing**

The cost shares for this project come from a number of sources:

- \$25,000 in direct matching funds from the Sacramento River National Wildlife Refuge.
- The Sacramento River National Wildlife Refuge will be responsible for the long-term operation and maintenance costs, once the site is established.



Table 5. Funding for Entire 400 acre Restoration at Llano Seco with Revetment

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Subject to Overhead				Cost of Overhead	Service Contracts	Equipment	Totals
					Salary	Benefits	Travel	Supplies				
Year 1	Hydrologic Study	Restoration Ecologist	128		\$2,435	\$620	\$480	\$0	\$756	\$28,000	\$0	\$32,291
		Project Director	80	\$21	\$1,654	\$587						
		Field Equipment Operator	3	\$29	\$93	\$33						
		Biologist	0	\$12	\$0	\$0						
		Laborer	45	\$15	\$689	\$0						
	Site Assessment	Restoration Ecologist	230		\$4,487	\$1,256	\$861	\$2,800	\$1,948	\$1,600	\$0	\$12,952
		Field Manager	160	\$21	\$3,307	\$1,174						
		Project Director	8	\$29	\$232	\$82						
		Field Equipment Operator	0	\$12	\$0	\$0						
		Biologist	62	\$15	\$947	\$0						
	Restoration Plan	Laborer	0	\$9	\$0	\$0						
		Restoration Ecologist	348		\$6,731	\$1,843	\$1,305	\$4,000	\$2,885	\$5,600	\$0	\$22,364
Field Manager		240	\$21	\$4,961	\$1,761							
Project Director		0	\$14	\$0	\$0							
Field Equipment Operator		8	\$29	\$232	\$82							
Plant Propagation	Field Equipment Operator	0	\$12	\$0	\$0							
	Biologist	100	\$15	\$1,538	\$0							
	Laborer	0	\$9	\$0	\$0							
	Restoration Ecologist	96		\$1,561	\$117	\$360	\$78,000	\$16,095	\$3,000	\$0	\$99,134	
	Field Manager	16	\$21	\$331	\$117							
Field Survey/Layout	Project Director	0	\$29	\$0	\$0							
	Field Equipment Operator	0	\$12	\$0	\$0							
	Biologist	80	\$15	\$1,230	\$0							
	Laborer	0	\$9	\$0	\$0							
	Restoration Ecologist	256		\$4,195	\$628	\$960	\$4,400	\$2,189	\$12,000	\$0	\$24,372	
Irrigation Installation	Field Manager	80	\$21	\$1,654	\$587							
	Project Director	4	\$29	\$116	\$41							
	Field Equipment Operator	0	\$12	\$0	\$0							
	Biologist	140	\$15	\$2,153	\$0							
	Laborer	32	\$9	\$272	\$0							
	Restoration Ecologist	320		\$3,752	\$1,018	\$1,200	\$1,920	\$1,578	\$200,000	\$0	\$209,468	
	Field Manager	16	\$21	\$331	\$117							
	Project Director	80	\$14	\$1,154	\$410							
	Field Equipment Operator	0	\$29	\$0	\$0							
	Biologist	120	\$12	\$1,384	\$491							
	Laborer	0	\$15	\$0	\$0							
	Laborer	104	\$9	\$884	\$0							

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Subject to Overhead			Cost of Overhead	Service Contracts	Equipment	Totals
					Salary	Benefits	Travel	Supplies			
Field Planting		Restoration Ecologist	572		\$5,517	\$631	\$2,145	\$10,400	\$3,739	\$198,000	\$260,431
		Field Manager	0	\$21	\$0	\$0					
		Project Director	64	\$14	\$923	\$328					
		Field Equipment Operator	4	\$29	\$116	\$41					
		Biologist	64	\$12	\$738	\$262					
		Laborer	0	\$15	\$0	\$0					
Revetment Planting		Restoration Ecologist	440	\$9	\$3,740	\$0					
		Field Manager	480		\$4,520	\$410	\$1,800	\$17,800	\$4,906	\$77,600	\$107,036
		Project Director	0	\$21	\$0	\$0					
		Field Equipment Operator	40	\$14	\$577	\$205					
		Biologist	4	\$29	\$116	\$41					
		Laborer	40	\$12	\$461	\$164					
Native Grass Planting		Restoration Ecologist	0	\$15	\$0	\$0					
		Field Manager	396	\$9	\$3,366	\$0					
		Project Director	0	\$21	\$0	\$0					
		Field Equipment Operator	0	\$14	\$0	\$0					
		Biologist	0	\$29	\$0	\$0					
		Laborer	0	\$12	\$0	\$0					
Maintenance		Restoration Ecologist	324	\$9	\$4,098	\$1,327	\$1,215	\$32,000	\$7,728	\$20,000	\$82,367
		Field Manager	0	\$21	\$0	\$0					
		Project Director	160	\$14	\$2,307	\$819					
		Field Equipment Operator	2	\$29	\$46	\$16					
		Biologist	120	\$12	\$1,384	\$491					
		Laborer	0	\$15	\$0	\$0					
Monitoring		Restoration Ecologist	42	\$9	\$360	\$0					
		Field Manager	480		\$8,652	\$1,761	\$1,800	\$2,400	\$3,185	\$35,200	\$52,998
		Project Director	240	\$21	\$4,961	\$1,761					
		Field Equipment Operator	0	\$14	\$0	\$0					
		Biologist	0	\$29	\$0	\$0					
		Laborer	0	\$12	\$0	\$0					
Random Block Study		Restoration Ecologist	240	\$15	\$3,691	\$0					
		Field Manager	0	\$9	\$0	\$0					
		Project Director	240		\$4,707	\$1,409	\$900	\$480	\$1,552	\$0	\$9,047
		Field Equipment Operator	192	\$21	\$3,969	\$1,409					
		Biologist	0	\$14	\$0	\$0					
		Laborer	0	\$29	\$0	\$0					

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Salary	Benefits	Travel	Supplies	Cost of Overhead	Service Contracts	Equipment	Totals
Year 2	Outreach	Restoration Ecologist	104	\$21	\$1,952	\$605	\$390	\$1,066	\$820	\$4,000	\$0	\$8,834
		Field Manager	40	\$21	\$827	\$294						
		Project Director	16	\$14	\$231	\$82						
		Field Equipment Operator	16	\$29	\$464	\$165						
		Biologist	16	\$12	\$184	\$65						
	Project Management	Laborer	0	\$15	\$246	\$0						
			2164	\$9	\$0	\$0						
		Restoration Ecologist	800	\$21	\$54,794	\$19,343	\$0	\$1,600	\$15,169	\$5,600	\$0	\$96,506
		Field Manager	32	\$14	\$16,536	\$5,870						
		Project Director	1280	\$29	\$37,120	\$13,178						
Year 2	Plant Propagation	Field Equipment Operator	32	\$12	\$369	\$131						
		Biologist	20	\$15	\$308	\$0						
		Laborer	0	\$9	\$0	\$0						
			5742	\$9	\$107,400	\$30,969	\$13,416	\$156,866	\$62,550	\$590,600	\$56,000	\$1,017,801
		Totals Year 1										
	Field Replanting	Restoration Ecologist	32	\$21	\$501	\$12	\$120	\$26,000	\$1,000	\$3,000	\$0	\$30,632
		Field Manager	2	\$14	\$33	\$12						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	0	\$12	\$0	\$0						
		Biologist	30	\$15	\$468	\$0						
Year 2	Native Grass Planting	Laborer	0	\$9	\$0	\$0						
			194	\$9	\$2,021	\$336	\$729	\$8,000	\$2,217	\$66,000	\$0	\$79,303
		Restoration Ecologist	0	\$21	\$0	\$0						
		Field Manager	32	\$14	\$461	\$164						
		Project Director	4	\$29	\$116	\$41						
	Maintenance	Field Equipment Operator	32	\$12	\$369	\$131						
		Biologist	0	\$15	\$0	\$0						
		Laborer	126	\$9	\$1,074	\$0						
			344	\$9	\$3,609	\$811	\$1,290	\$81,840	\$17,510	\$60,000	\$0	\$165,060
		Restoration Ecologist	0	\$21	\$0	\$0						
Year 2	Plant Propagation	Field Manager	30	\$14	\$438	\$156						
		Project Director	2	\$29	\$46	\$16						
		Field Equipment Operator	156	\$12	\$1,799	\$639						
		Biologist	0	\$15	\$0	\$0						
		Laborer	156	\$9	\$1,326	\$0						
	Maintenance		320	\$9	\$4,031	\$1,310	\$1,200	\$16,000	\$4,508	\$20,000	\$0	\$47,049
		Restoration Ecologist	0	\$21	\$0	\$0						
		Field Manager	160	\$14	\$2,307	\$819						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	120	\$12	\$1,384	\$491						
Year 2	Native Grass Planting	Biologist	0	\$15	\$0	\$0						
		Laborer	40	\$9	\$340	\$0						
			40	\$9	\$340	\$0						
		Restoration Ecologist	0	\$21	\$0	\$0						
		Field Manager	160	\$14	\$2,307	\$819						
	Maintenance	Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	120	\$12	\$1,384	\$491						
		Biologist	0	\$15	\$0	\$0						
		Laborer	40	\$9	\$340	\$0						
			40	\$9	\$340	\$0						

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Salary	Benefits	Travel	Supplies	Cost of Overhead	Service Contracts	Equipment	Totals
	Monitoring	Restoration Ecologist	480	\$21	\$8,652	\$1,761	\$1,800	\$2,400	\$3,185	\$80,000	\$0	\$97,798
		Field Manager	240	\$14	\$4,961	\$1,761						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	0	\$12	\$0	\$0						
		Biologist	240	\$15	\$3,691	\$0						
	Random Block Study	Laborer	0	\$9	\$0	\$0						
		Restoration Ecologist	240	\$21	\$4,707	\$1,409	\$900	\$240	\$1,504	\$0	\$0	\$8,759
		Field Manager	192	\$14	\$3,969	\$1,409						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	0	\$12	\$0	\$0						
	Outreach	Biologist	48	\$15	\$738	\$0						
		Laborer	0	\$9	\$0	\$0						
		Restoration Ecologist	104	\$21	\$1,952	\$606	\$390	\$1,066	\$820	\$4,000	\$0	\$8,834
		Field Manager	40	\$14	\$827	\$294						
		Project Director	16	\$29	\$231	\$82						
Year 3	Project Management	Field Equipment Operator	16	\$12	\$464	\$165						
		Biologist	16	\$15	\$246	\$0						
		Laborer	0	\$9	\$0	\$0						
		Restoration Ecologist	2164	\$21	\$54,794	\$19,343	\$0	\$1,600	\$15,169	\$5,600	\$0	\$96,506
		Field Manager	800	\$14	\$16,536	\$5,870						
	Maintenance	Project Director	32	\$29	\$461	\$164						
		Field Equipment Operator	1280	\$29	\$37,120	\$13,178						
		Biologist	32	\$12	\$369	\$131						
		Laborer	20	\$15	\$308	\$0						
		Totals Year 2	3878		\$79,766	\$25,575	\$6,429	\$137,146	\$45,913	\$238,600	\$0	\$533,942
	Monitoring	Restoration Ecologist	320	\$21	\$4,031	\$1,310	\$1,200	\$16,000	\$4,508	\$20,000	\$0	\$47,049
		Field Manager	160	\$14	\$2,307	\$819						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	120	\$12	\$1,384	\$491						
		Biologist	0	\$15	\$0	\$0						
	Monitoring	Laborer	40	\$9	\$340	\$0						
		Restoration Ecologist	480	\$21	\$8,652	\$1,761	\$1,800	\$2,400	\$3,185	\$80,000	\$0	\$97,798
		Field Manager	240	\$14	\$4,961	\$1,761						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	0	\$12	\$0	\$0						

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Subject to Overhead			Cost of Overhead	Service Contracts	Equipment	Totals
					Salary	Benefits	Travel	Supplies			
Random Block Study		Restoration Ecologist	240	\$21	\$4,707	\$1,409	\$900	\$240	\$1,504	\$0	\$8,759
		Field Manager	192	\$14	\$3,969	\$1,409					
		Project Director	0	\$29	\$0	\$0					
		Field Equipment Operator	0	\$12	\$0	\$0					
		Biologist	48	\$15	\$738	\$0					
	Outreach	Laborer	0	\$9	\$0	\$0					
		Restoration Ecologist	104	\$21	\$1,952	\$606	\$390	\$1,066	\$820	\$4,000	\$8,834
		Field Manager	40	\$21	\$827	\$294					
		Project Director	16	\$14	\$231	\$82					
		Field Equipment Operator	16	\$29	\$464	\$165					
	Project Management	Biologist	16	\$12	\$184	\$65					
		Laborer	0	\$9	\$0	\$0					
		Restoration Ecologist	2164	\$21	\$54,794	\$19,343	\$0	\$1,600	\$15,169	\$5,600	\$96,506
		Field Manager	800	\$14	\$16,536	\$5,870					
		Project Director	32	\$29	\$461	\$164					
Project Duration Hydrologic Study		Field Equipment Operator	1280	\$12	\$37,120	\$13,178					
		Biologist	32	\$15	\$369	\$131					
		Laborer	20	\$9	\$308	\$0					
		Restoration Ecologist	0	\$21	\$0	\$0					
		Field Manager	0	\$14	\$0	\$0					
	Site Assessment	Project Director	3	\$29	\$93	\$33					
		Field Equipment Operator	0	\$12	\$0	\$0					
		Biologist	45	\$15	\$689	\$0					
		Laborer	0	\$9	\$0	\$0					
		Restoration Ecologist	230	\$21	\$4,487	\$1,256	\$861	\$2,800	\$1,948	\$1,600	\$12,962
	Restoration Plan	Field Manager	160	\$14	\$3,307	\$1,174					
		Project Director	8	\$29	\$232	\$82					
		Field Equipment Operator	0	\$12	\$0	\$0					
		Biologist	62	\$15	\$947	\$0					
		Laborer	0	\$9	\$0	\$0					
Project Duration Hydrologic Study		Restoration Ecologist	348	\$21	\$6,731	\$1,843	\$1,305	\$4,000	\$2,885	\$5,600	\$22,364
		Field Manager	240	\$14	\$4,961	\$1,761					
		Project Director	8	\$29	\$232	\$82					
		Field Equipment Operator	0	\$12	\$0	\$0					
		Biologist	100	\$15	\$1,538	\$0					
	Totals Year 3	Laborer	0	\$9	\$0	\$0					
		Restoration Ecologist	3308	\$21	\$74,136	\$24,428	\$4,290	\$21,306	\$25,186	\$109,600	\$258,947
		Field Manager	128	\$14	\$2,435	\$620	\$480	\$0	\$756	\$28,000	\$32,291
		Project Director	0	\$29	\$0	\$0					
		Field Equipment Operator	0	\$12	\$0	\$0					
	Totals Year 3	Biologist	45	\$15	\$689	\$0					
		Laborer	0	\$9	\$0	\$0					
		Restoration Ecologist	230	\$21	\$4,487	\$1,256	\$861	\$2,800	\$1,948	\$1,600	\$12,962
		Field Manager	160	\$14	\$3,307	\$1,174					
		Project Director	8	\$29	\$232	\$82					
	Restoration Plan	Field Equipment Operator	0	\$12	\$0	\$0					
		Biologist	62	\$15	\$947	\$0					
		Laborer	0	\$9	\$0	\$0					
		Restoration Ecologist	348	\$21	\$6,731	\$1,843	\$1,305	\$4,000	\$2,885	\$5,600	\$22,364
		Field Manager	240	\$14	\$4,961	\$1,761					
		Project Director	8	\$29	\$232	\$82					
		Field Equipment Operator	0	\$12	\$0	\$0					
		Biologist	100	\$15	\$1,538	\$0					
		Laborer	0	\$9	\$0	\$0					

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Subject to Overhead				Cost of Overhead	Service Contracts	Equipment	Totals
					Salary	Benefits	Travel	Supplies				
Plant Propagation												
		Restoration Ecologist	128		\$2,062	\$129	\$480	\$104,000	\$17,095	\$6,000	\$0	\$129,766
		Field Manager	18	\$21	\$364	\$129						
		Project Director	0	\$14	\$0	\$0						
		Field Equipment Operator	0	\$29	\$0	\$0						
		Biologist	0	\$12	\$0	\$0						
		Laborer	110	\$15	\$1,698	\$0						
			0	\$9	\$0	\$0						
Field Survey/Layout												
		Restoration Ecologist	256		\$4,195	\$628	\$960	\$4,400	\$2,189	\$12,000	\$0	\$24,372
		Field Manager	80	\$21	\$1,654	\$587						
		Project Director	0	\$14	\$0	\$0						
		Field Equipment Operator	4	\$29	\$116	\$41						
		Biologist	0	\$12	\$0	\$0						
		Laborer	140	\$15	\$2,153	\$0						
			32	\$9	\$272	\$0						
Irrigation Installation												
		Restoration Ecologist	320		\$3,752	\$1,018	\$1,200	\$1,920	\$1,578	\$200,000	\$0	\$209,468
		Field Manager	16	\$21	\$331	\$117						
		Project Director	80	\$14	\$1,154	\$410						
		Field Equipment Operator	0	\$29	\$0	\$0						
		Biologist	120	\$12	\$1,384	\$491						
		Laborer	0	\$15	\$0	\$0						
			104	\$9	\$884	\$0						
Field Planting+Replants												
		Restoration Ecologist	766		\$7,538	\$967	\$2,874	\$18,400	\$5,956	\$264,000	\$40,000	\$339,734
		Field Manager	0	\$21	\$0	\$0						
		Project Director	96	\$14	\$1,384	\$491						
		Field Equipment Operator	8	\$29	\$232	\$82						
		Biologist	96	\$12	\$1,107	\$393						
		Laborer	0	\$15	\$0	\$0						
			566	\$9	\$4,814	\$0						
Revetment Planting												
		Restoration Ecologist	480		\$4,520	\$410	\$1,800	\$17,800	\$4,906	\$77,600	\$0	\$107,036
		Field Manager	0	\$21	\$0	\$0						
		Project Director	40	\$14	\$577	\$205						
		Field Equipment Operator	4	\$29	\$116	\$41						
		Biologist	40	\$12	\$461	\$164						
		Laborer	0	\$15	\$0	\$0						
			396	\$9	\$3,366	\$0						
Native Grass Planting												
		Restoration Ecologist	344		\$3,609	\$811	\$1,290	\$81,840	\$17,510	\$60,000	\$0	\$165,060
		Field Manager	0	\$21	\$0	\$0						
		Project Director	30	\$14	\$438	\$156						
		Field Equipment Operator	2	\$29	\$46	\$16						
		Biologist	156	\$12	\$1,799	\$639						
		Laborer	0	\$15	\$0	\$0						
			156	\$9	\$1,326	\$0						

Year	Task	Personnel	Direct Labor Hours	Pay Rate /hr.	Salary	Benefits	Travel	Supplies	Cost of Overhead	Service Contracts	Equipment	Totals
	Maintenance		964		\$12,159	\$3,947	\$3,615	\$64,000	\$16,744	\$60,000	\$16,000	\$176,466
		Restoration Ecologist	0	\$21	\$0	\$0						
		Field Manager	480	\$14	\$6,922	\$2,457						
		Project Director	2	\$29	\$46	\$16						
		Field Equipment Operator	360	\$12	\$4,151	\$1,474						
		Biologist	0	\$15	\$0	\$0						
		Laborer	122	\$9	\$1,040	\$0						
	Monitoring		1440		\$25,956	\$5,283	\$5,400	\$7,200	\$9,554	\$195,200	\$0	\$248,593
		Restoration Ecologist	720	\$21	\$14,882	\$5,283						
		Field Manager	0	\$14	\$0	\$0						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	0	\$12	\$0	\$0						
		Biologist	720	\$15	\$11,074	\$0						
		Laborer	0	\$9	\$0	\$0						
	Random Block Study		720		\$14,121	\$4,227	\$2,700	\$960	\$4,559	\$0	\$0	\$26,566
		Restoration Ecologist	576	\$21	\$11,906	\$4,227						
		Field Manager	0	\$14	\$0	\$0						
		Project Director	0	\$29	\$0	\$0						
		Field Equipment Operator	0	\$12	\$0	\$0						
		Biologist	144	\$15	\$2,215	\$0						
		Laborer	0	\$9	\$0	\$0						
	Outreach		312		\$5,856	\$1,817	\$1,170	\$3,199	\$2,461	\$12,000	\$0	\$26,503
		Restoration Ecologist	120	\$21	\$2,480	\$881						
		Field Manager	48	\$14	\$692	\$246						
		Project Director	48	\$29	\$1,392	\$494						
		Field Equipment Operator	48	\$12	\$553	\$196						
		Biologist	48	\$15	\$738	\$0						
		Laborer	0	\$9	\$0	\$0						
	Project Management		6492		\$164,382	\$58,028	\$0	\$4,800	\$45,508	\$16,800	\$0	\$289,518
		Restoration Ecologist	2400	\$21	\$49,608	\$17,611						
		Field Manager	96	\$14	\$1,384	\$491						
		Project Director	3840	\$29	\$111,360	\$39,533						
		Field Equipment Operator	96	\$12	\$1,107	\$393						
		Biologist	60	\$15	\$923	\$0						
		Laborer	0	\$9	\$0	\$0						
	Total for Project Duration		12928		\$261,802	\$80,984	\$24,135	\$315,319	\$133,649	\$938,800	\$56,000	\$1,810,690





Table 7: Summary of Funding for 200 acre Restoration Project with Revegetation at Llano Seco

Year	Task	Direct Labor Hours	Subject to Overhead				Cost of Overhead	Service Contracts	Equipment	Totals	
			Salary	Benefits	Travel	Supplies					
Year 1	Hydrologic Study	96	\$1,827	\$465	\$360	\$0	\$567	\$21,000	\$0	\$24,219	
	Site Assessment	172	\$3,365	\$942	\$646	\$2,100	\$1,461	\$1,200	\$0	\$9,714	
	Restoration Plan	261	\$5,048	\$1,383	\$979	\$3,000	\$2,164	\$4,200	\$0	\$16,773	
	Plant Propagation	48	\$781	\$59	\$180	\$39,000	\$8,048	\$1,500	\$0	\$49,567	
	Field Survey/Layout	128	\$2,097	\$314	\$480	\$2,200	\$1,095	\$6,000	\$0	\$12,186	
	Irrigation Installation	240	\$2,814	\$764	\$900	\$1,440	\$1,184	\$150,000	\$0	\$157,101	
	Field Planting	286	\$2,758	\$315	\$1,073	\$5,200	\$1,869	\$99,000	\$40,000	\$150,216	
	Revetment Planting	480	\$4,520	\$410	\$1,800	\$17,800	\$4,906	\$77,600	\$0	\$107,036	
	Native Grass Planting	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Maintenance	162	\$2,049	\$663	\$608	\$16,000	\$3,864	\$10,000	\$16,000	\$49,184	
	Monitoring	360	\$6,489	\$1,321	\$1,350	\$1,800	\$2,389	\$26,400	\$0	\$39,748	
	Random Block Study	180	\$3,530	\$1,057	\$675	\$360	\$1,164	\$0	\$0	\$6,785	
	Outreach	78	\$1,464	\$454	\$293	\$800	\$615	\$3,000	\$0	\$6,626	
Project Management	1623	\$41,096	\$14,507	\$0	\$1,200	\$11,377	\$4,200	\$0	\$72,379		
Totals Year 1		4114	\$77,837	\$22,653	\$9,342	\$90,900	\$40,701	\$404,100	\$56,000	\$701,534	
Year 2	Plant Propagation	16	\$250	\$6	\$60	\$13,000	\$500	\$1,500	\$0	\$15,316	
	Field Replanting	97	\$1,010	\$168	\$365	\$4,000	\$1,109	\$33,000	\$0	\$39,651	
	Native Grass Planting	172	\$1,805	\$405	\$645	\$40,920	\$8,755	\$30,000	\$0	\$82,530	
	Maintenance	160	\$2,015	\$655	\$600	\$8,000	\$2,254	\$10,000	\$0	\$23,525	
	Monitoring	360	\$6,489	\$1,321	\$1,350	\$1,800	\$2,389	\$60,000	\$0	\$73,348	
	Random Block Study	180	\$3,530	\$1,057	\$675	\$180	\$1,128	\$0	\$0	\$6,569	
	Outreach	78	\$1,464	\$454	\$293	\$800	\$615	\$3,000	\$0	\$6,626	
	Project Management	1623	\$41,096	\$14,507	\$0	\$1,200	\$11,377	\$4,200	\$0	\$72,379	
	Totals Year 2		2686	\$57,660	\$18,573	\$3,987	\$69,900	\$28,126	\$141,700	\$0	\$319,945
	Year 3	Maintenance	160	\$2,015	\$655	\$600	\$8,000	\$2,254	\$10,000	\$0	\$23,525
Monitoring		360	\$6,489	\$1,321	\$1,350	\$1,800	\$2,389	\$60,000	\$0	\$73,348	
Random Block Study		180	\$3,530	\$1,057	\$675	\$180	\$1,128	\$0	\$0	\$6,569	
Outreach		78	\$1,464	\$454	\$293	\$800	\$615	\$3,000	\$0	\$6,626	
Project Management		1623	\$41,096	\$14,507	\$0	\$1,200	\$11,377	\$4,200	\$0	\$72,379	
Totals Year 3		2401	\$54,594	\$17,994	\$2,918	\$11,980	\$17,762	\$77,200	\$0	\$182,448	
Project Duration	Totals		9201	\$190,091	\$59,220	\$16,247	\$172,779	\$86,589	\$623,000	\$56,000	\$1,203,927
	Total without reveitment		8721	\$185,571	\$58,810	\$14,447	\$154,979	\$81,683	\$545,400	\$56,000	\$1,096,891

- \$15,360 in labor from local conservation groups. We will hold 8 volunteer workdays a year. These workdays will be attended by members of local organizations (the California Native Plant Society, the Audubon Society and the Sierra Club) and Butte College biology students, for a total of 1,920 man-hours of labor over the course of the project.

## **G. LOCAL INVOLVEMENT**

Sacramento River Partners is a local grassroots conservation organization. Members of the community will implement every phase of the proposed restoration work from the ecologist planning the project to neighboring farmers disking the fields and planting the trees. This community directed project will build local interest, foster understanding, and develop conservation capacity.

The proposed project has the potential to produce outstanding biological benefits and consequently enjoys strong support from the FWS and California State University, Chico. Our proposal is also endorsed by many community conservation groups including the Mt. Lassen Chapter of the California Native Plant Society, the local Audubon Society Chapter, and the Butte Environmental Council. Last year, we presented the same basic proposal to both the SB 1086 Riparian Habitat Committee and the Advisory Council and they found it consistent with the program's goals and objectives. No Advisory Council meeting was held this year, but the 1999 letter is attached (Exhibit 2).

The project is also strongly endorsed by the adjacent landowner, Richard Thieriot, who owns and farms 6,000 acres of Llano Seco. Mr. Thieriot has even volunteered to coordinate his private reforestation efforts with the project; he is willing to plant a riparian buffer across his own private property to link Angel Slough, the project, and the river together.

Members of both the Butte and Glenn County Board of Supervisors have attended field days at the proposed project site. Also in attendance on these field days were several local farmers and the general manager of Western Canal Water District. A separate meeting was held to present this proposal to the general manager and officers of the Princeton-Codora-Glenn and Provident Irrigation Districts (PCG-PID). The landowners and irrigation districts have adopted a neutral position regarding our proposal but are committed to staying involved with the project. The proposed Llano Seco reforestation project has the potential to showcase the common ground between conservation and agricultural interests.

### **Potential Third Party Impacts:**

- Flood Conveyance –A through hydraulic evaluation will be conducted to insure that the design of the riparian planting does not negatively effect capacity of the flood system or flow distribution (MBK Engineers 2000).

### **Public Outreach Plan**

- SRP will host a minimum of 6 work and/or field days for interested parties and local community members over the life of the project.
- Host media field days to inform the public on the benefits of riparian restoration.

- Collaborate with Glenn County Office of Education, Butte College, and California State University Chico to provide hands-on learning opportunities.

## **H. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS**

SRP agrees to comply with the terms and conditions listed in Attachments E and D of the CALFED Proposal Solicitation Package (CALFED 2000).

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## **J. THRESHOLD REQUIREMENTS**

Filename

## Sacramento River Partners

261 East 3rd Street

Chico, CA 95928

Phone (530) 894-3474 Fax (530) 894-2970

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May 12, 2000

Tom Parilo  
Department Head  
Department of Development Services  
7 County Center Drive  
Oroville, 95965 - 3334

Dear Mr. Parilo:

The purpose of this letter is to inform you that Sacramento River Partners is submitting a proposal to CALFED for funding to restore 400 acres of riparian habitat in Butte County. All of the proposed restoration work will occur along the Sacramento River on land that is owned by the federal government.

I presented the proposed project in detail to Butte County Supervisors Jane Dolan and Curt Josiassen during an on site visit last year. At that time both supervisors expressed concerns regarding the project's potential impact on flow splits and flood control. In this proposal we have addressed these issues with an evaluation conducted by the engineering firm of Murray, Burns, and Kienlen. The net result of this evaluation is that the project was found to be "flood neutral". Please see the enclosed proposal for specific details.

If you have any questions or require additional information please contact me at (530) 894-3474.

Sincerely,



John Carlon  
President

Sacramento River Partners

Enclosure: CALFED Restoration Proposal

## Sacramento River Partners

261 East 3rd Street

Chico, CA 95928

Phone (530) 894-3474 Fax (530) 894-2970

---

May 12, 2000

John Blacklock  
Clerk of Butte County Board of Supervisors  
25 County Center Drive  
Oroville, 95965

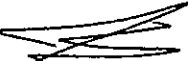
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Sincerely,



John Carlon  
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Sacramento River Partners

Enclosure: CALFED Restoration Proposal

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-85) FMC

COMPANY NAME

Sacramento River Partners

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.*

OFFICIAL'S NAME

John Carlon

DATE EXECUTED

May 15, 2000

EXECUTED IN THE COUNTY OF  
Butte

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

President

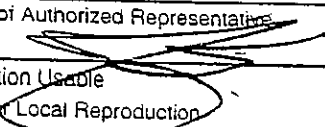
PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Sacramento River Partners



# APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval No. 0346-0043

<b>1. TYPE OF SUBMISSION:</b> Application <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Non-Construction Preapplication <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Non-Construction		<b>2. DATE SUBMITTED</b> 5/15/2000		Applicant Identifier	
		<b>3. DATE RECEIVED BY STATE</b>		State Application Identifier	
		<b>4. DATE RECEIVED BY FEDERAL AGENCY</b>		Federal Identifier	
<b>5. APPLICANT INFORMATION</b>					
Legal Name: Sacramento River Partners			Organizational Unit:		
Address (give city, county, State, and zip code):  261 E. 3rd St. Chico, CA 95928			Name and telephone number of person to be contacted on matters involving this application (give area code) John Carlon (530) 894-3474		
<b>6. EMPLOYER IDENTIFICATION NUMBER (EIN):</b> 94-3302335			<b>7. TYPE OF APPLICANT: (enter appropriate letter in box)</b> <div style="display: flex; justify-content: space-between;"> <div>           A. State            B. County            C. Municipal            D. Township            E. Interstate            F. Intermunicipal            G. Special District         </div> <div>           H. Independent School Dist.            I. State Controlled Institution of Higher Learning            J. Private University            K. Indian Tribe            L. Individual            M. Profit Organization            N. Other (Specify) <u>Non-profit 501(c)(3)</u> </div> </div>		
<b>8. TYPE OF APPLICATION:</b> <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es) <input type="checkbox"/> <input type="checkbox"/> A. Increase Award    B. Decrease Award    C. Increase Duration D. Decrease Duration    Other(specify): _____			<b>9. NAME OF FEDERAL AGENCY:</b> CALFED		
<b>10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:</b> TITLE: <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			<b>11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:</b>  Understanding Natural Processes Through Active Riparian Restora- tion at Llano Seco Rancho, Butte County, California		
<b>12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.):</b> Butte County, California					
<b>13. PROPOSED PROJECT</b>		<b>14. CONGRESSIONAL DISTRICTS OF:</b> 2nd District			
Start Date 9/99	Ending Date 10/02	a. Applicant Sacramento River Partners		b. Project	
<b>15. ESTIMATED FUNDING:</b>		<b>16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?</b>			
a. Federal    \$    1,810,690		a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:  DATE _____			
b. Applicant    \$		b. No. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E. O. 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW			
c. State    \$					
d. Local    \$					
e. Other    \$					
f. Program Income    \$					
g. TOTAL    \$    1,810,690		<b>17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?</b> <input type="checkbox"/> Yes    If "Yes," attach an explanation. <input checked="" type="checkbox"/> No			
<b>18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.</b>					
a. Type Name of Authorized Representative John Carlon		b. Title President		c. Telephone Number (530) 894-3474	
d. Signature of Authorized Representative 				e. Date Signed 5/15/2000	

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 Authorized for Local Reproduction

Standard Form 424 (Rev. 7-97)  
 Prescribed by OMB Circular A-102

**STANDARD CLAUSES -  
SERVICE & CONSULTANT SERVICE CONTRACTS FOR \$5,000 & OVER WITH NONPUBLIC ENTITIES**

**Workers' Compensation Clause.** Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract.

**National Labor Relations Board Clause.** In accordance with Public Contract Code Section 10296, Contractor declares under penalty of perjury that no more than one final, unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of Contractor's failure to comply with an order of a federal court which orders Contractor to comply with an order of the national Labor Relations Board.

**Nondiscrimination Clause.** During the performance of this contract, the recipient, Contractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding State agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

**Statement of Compliance.** The Contractor's signature affixed hereon and dated shall constitute a certification under penalty of perjury under the laws of the State of California that the Contractor has, unless exempted, complied with the nondiscrimination program requirements of Government Code Section 12900 and Title 2, California Code of Regulations, Section 8103.

**Performance Evaluation.** For consulting service agreements, Contractor's performance under this contract will be evaluated after completion. A negative evaluation will be filed with the Department of General Services.

**Availability of Funds.** Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

**Audit Clause.** For contracts in excess of \$10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

**Payment Retention Clause.** Ten percent of any progress payments that may be provided for under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

**Reimbursement Clause.** If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: \_\_\_\_\_

**Disabled Veteran Business Enterprise Participation Requirement Audit Clause.** Contractor or vendor agrees that the awarding department or its delegates will have the right to review, obtain, and copy all records pertaining to performance of the contract. Contractor or vendor agrees to provide the awarding department or its delegate access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with Public Contract Code Section 10115 et seq. Contractor or vendor further agrees to maintain such records for a period of three (3) years after final payment under the contract. Title 2 CCR Section 1896.75.

**Priority Hiring Considerations.** For contracts in excess of \$200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by the contract to qualified recipients of aid under Welfare and Institutions Code Section 11200. (Public Contract Code Section 10353).

Agreement No. \_\_\_\_\_

Exhibit \_\_\_\_\_

**ADDITIONAL STANDARD CLAUSES**

**Recycled Materials.** Contractor hereby certifies under penalty of perjury that \_\_\_\_\_ (enter value or "0" here) percent of the materials, goods and supplies offered or products used in the performance of this Agreement meets or exceeds the minimum percentage of recycled material as defined in Sections 12161 and 12200 of the Public Contract Code.

**Severability.** If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.

**Governing Law.** This Agreement is governed by and shall be interpreted in accordance with the laws of the State of California.

**Y2K Language.** The Contractor warrants and represents that the goods or services sold, leased, or licensed to the State of California, its agencies, or its political subdivisions, pursuant to this Agreement are "Year 2000 compliant." For purposes of this Agreement a good or service is Year 2000 compliant if it will continue to fully function before, at, and after the Year 2000 without interruption and, if applicable, with full ability to accurately and unambiguously process, display, compare, calculate, manipulate, and otherwise utilize date information. This warranty and representation supersedes all warranty disclaimers and limitations and all limitations on liability provided by or through the Contractor.

**Child Support Compliance Act.** For any Agreement in excess of \$100,000, the Contractor acknowledges in accordance therewith, that:

1. The Contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code; and
2. The Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

## Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

x-NEPA  
YES

                      
NO

2. If you answered yes to # 1, identify the lead governmental agency for CEQA/NEPA compliance.

U.S. Fish and Wildlife Service  
Lead Agency

3. If you answered no to # 1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.

4. If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.

NEPA compliance completed. In accordance with NEPA, an Environmental Assessment (EA) of the entire Llano Seco Management Plan was completed in 1992. The proposed project stems from the recommendations of the EA.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

x  
YES

                      
NO

If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval.

Please see attached support letter from Kevin Forester of U.S. Fish and Wildlife Service.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check all boxes that apply.

LOCAL

Conditional use permit	_____	
Variance	_____	
Subdivision Map Act approval	_____	
Grading permit	_____	
General plan amendment	_____	
Specific plan approval	_____	
Rezone	_____	
Williamson Act Contract	_____	_____
cancellation	_____	
Other <u>Butte Co. Spray Permit</u>	_____	
(please specify)		
None required	_____	

STATE

CESA Compliance	_____	(CDFG)
Streambed alteration permit	_____	(CDFG)
CWA § 401 certification	_____	(RWQCB)
Coastal development permit	_____	(Coastal Commission/BCDC)
Reclamation Board approval	_____	
Notification	_____	(DPC, BCDC)
Other _____	_____	
(please specify)		
None required	_____	

FEDERAL

ESA Consultation	_____	(USFWS)
Rivers & Harbors Act permit	_____	(ACOE)
CWA § 404 permit	_____	(ACOE)
Other <u>Army C.O.E. Revetment Permit</u>	_____	
(please specify)		
None required	_____	

DPC = Delta Protection Commission  
 CWA = Clean Water Act  
 CESA = California Endangered Species Act  
 USFWS = U.S. Fish and Wildlife Service  
 ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act  
 CDFG = California Department of Fish and Game  
 RWQCB = Regional Water Quality Control Board  
 BCDC = Bay Conservation and Development Comm.

# Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breaching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)?

  x    
YES

            
NO

2. If NO to # 1, explain what type of actions are involved in the proposal (i.e., research only, planning only).

3. If YES to # 1, what is the proposed land use change or restriction under the proposal?

The proposed site is already a wildlife refuge. The project involves planting native trees.

4. If YES to # 1, is the land currently under a Williamson Act contract?

            
YES

  x    
NO

5. If YES to # 1, answer the following:

Current land use

abandoned agriculture, wildlife refuge

Current zoning

A-40

Current general plan designation

public use, OFC (orchard and field crop)

6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?

            
YES

            
NO

  x    
DON'T KNOW

7. If YES to # 1, how many acres of land will be subject to physical change or land use restrictions under the proposal?

  400  

8. If YES to # 1, is the property currently being commercially farmed or grazed?

            
YES

  x    
NO

9. If YES to #8, what are

the number of employees/acre                     

the total number of employees

10. Will the applicant acquire any interest in land under the proposal (fee title or a conservation easement)?

**YES**

          X            
NO

11. What entity/organization will hold the interest? U.S. Fish and Wildlife Service (FWS)

12. If YES to # 10, answer the following:

Total number of acres to be acquired under proposal

Number of acres to be acquired in fee

Number of acres to be subject to conservation easement

13. For all proposals involving physical changes to the land or restriction in land use, describe what entity or organization will:

manage the property

FWS

provide operations and maintenance services

SWF

conduct monitoring

EWS

14. For land acquisitions (fee title or easements), will existing water rights also be acquired?

**YES**

NO

15. Does the applicant propose any modifications to the water right or change in the delivery of the water?

YES

X  
NO

16. If YES to # 15, describe \_\_\_\_\_

**Exhibit 1 : Letter from MBK Engineers  
Joe Countryman**

Evaluation of the Army Corps of Engineers Two Dimensional Hydraulic Model to  
the Proposed Restoration Project at Llano Seco





Water Resources • Flood Control • Water Rights

JOSEPH D. COUNTRYMAN, P.E.  
GILBERT COSIO, JR., P.E.  
MARC VAN CAMP, P.E.

JOHN F. WRIGHT, P.E.  
MICHAEL C. ARCHER, P.E.  
JEFFREY E. TWITCHELL, P.E.  
MARK E. FORTNER, P.E., L.L.S.  
DON T. TRIEU, P.E.  
GARY R. KIENLEN, P.E.  
THOMAS R. HICKMANN  
TEDDY D. RAMIL  
VALERIE VANN

ANGUS NORMAN MURRAY  
1913 - 1985

CONSULTANTS:  
JOSEPH I. BURNS, P.E.  
DONALD E. KIENLEN, P.E.

May 10, 2000

Mr. John Carlon  
Sacramento River Partners  
261 East 3<sup>rd</sup> Street  
Chico, CA 95928

**Subject: Llano Seco Habitat Restoration**

Dear Mr. Carlon:

I have evaluated the restoration project you are proposing for the Llano Seco Ranch property near River Mile 179 on the Sacramento River. I understand that you are restoring 400 acres of flood plain area to riparian forest.

The proposed restoration site is approximately two miles north of the north end of the east project levee. The flood plain of the Sacramento River is approximately five miles wide at this location. Part of the flood plain flows are diverted to Butte Basin, and the rest of the flows are contained within the project levees. The Corps of Engineers has established that about 58% of the flow is contained between the project levees with the rest flowing to Butte Basin for the 50-year flood. The major flood control concern in this area is that too much water would be captured by the levees and not enough water would be diverted to Butte Basin.

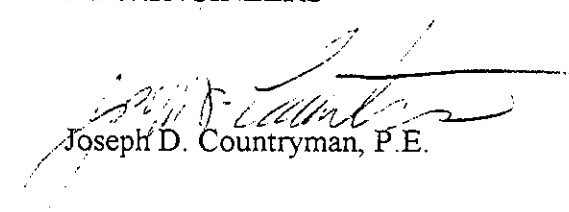
On May 3, 2000 I inspected the site of the proposed restoration work. While on the site, I was able to observe the existing hydraulic conditions and compare them with the 1997 Corps of Engineers hydraulic model of the area. The Corps' model was a two-dimensional model that was calibrated to the January 1995 flood. The proposed restoration area was included in the Corps' model. The model shows the restoration work is located south of the Goose Lake overflow area, and that the restored vegetation would be compatible with flows in the area and the design of the flood system.

Mr. John Carlon  
Llano Seco Habitat Restoration

May 10, 2000  
Page 2

In my opinion, the proposed work would be flood neutral. The proposed restoration would not significantly affect either the capacity of the flood system or the flow distribution between Butte Basin and the Sacramento River. This is because only 10% of the overbank flow is included in the restoration area. In addition, the proposed restoration will help stabilize the flow split between the river and Butte Basin by slowing flow near the river. The proposed restoration will also provide a localized benefit near the bank of the Sacramento River by slowing velocities and retarding erosion. This will maintain the existing flow conditions at the Princeton Cordora-Glenn and Provident Pump Plant.

Sincerely,  
MBK ENGINEERS



Joseph D. Countryman, P.E.

JDC/mv  
D:\WPDOCS-2000\JDC\LO510001.wpd



IN REPLY REFER TO:

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Sacramento National Wildlife Refuge Complex  
752 County Road 99W, Willows, California 95988

May 11, 2000

Mr. Steve Richie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Dear Mr. Richie:

The purpose of this letter is to inform you of my strong support for the proposal submitted by Sacramento River Partners to the CALFED Bay-Delta Program. The proposal requests funding to restore 8,500 linear feet of shaded riverine aquatic (SRA) and 400 acres of riparian habitat on the Llano Seco Unit of the Sacramento River National Wildlife Refuge.

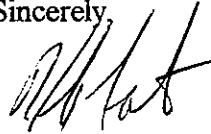
Congress authorized the Sacramento River National Wildlife in 1989. The project area encompasses over 100 river miles between the cities of Red Bluff and Colusa with a target of 18,000 fee title acres. The purposes for which the Refuge was established are: 1) To protect and provide habitat for threatened and endangered species; 2) To protect and provide habitat for migratory birds; 3) To restore riparian vegetation and habitat; 4) To provide opportunities for management oriented research and monitoring; and 5) To provide the public with opportunities for conservation oriented activities. To date the U.S. Fish and Wildlife has acquired 12,000 acres of land for the Refuge.

The Refuge supports Sacramento River Partners proposal for several reasons important to accomplishing our conservation and stewardship objectives. Active reforestation of the Llano Seco site will provide critically needed habitat for threatened and endangered species as well as neo-tropical migratory birds. Converting 400 acres of flood-prone agricultural land back into riparian forest will fill a biological void between two large blocks of existing habitat. Revegetating the 8,500 linear feet of SRA (including 2,600 feet of armored bank) will complete this project and establish a riparian corridor stretching 10 river miles and encompassing 12,300 acres of conservation ownership.

The U.S. Fish and Wildlife Service welcomes the opportunity to work with Sacramento River Partners, landowners and irrigation districts on this reforestation project. Sacramento River Partners is ideally suited for this task and provides an important link to both environmental groups and the agricultural community. The physical potential of the site combined with a public-private-nonprofit team of collaborators offer all of the components of a model conservation project.

I urge you to support this proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Foerster', written over the word 'Sincerely,'.

Kevin S. Foerster  
Refuge Manager

# *Altacal Audubon Society, Inc.*

Post Office Box 3671  
CHICO, CALIFORNIA 95926



5 May 2000

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, California

Dear Mr. Ritchie:

We strongly support the proposal submitted by Sacramento River Partners to the CALFED Bay-Delta Program. This proposal requests funding for a 3-year project that would implement the restoration of riparian habitat at the Llano Seco Unit of the Sacramento River National Wildlife Refuge in Butte County, California. The project will restore 400 acres of fallow flood-prone agricultural land, including 8,500 feet of shaded riverine habitat (SRA) and 2,600 feet of armored bank, to mixed riparian forest and oak woodland.

Altacal Audubon Society supports the Sacramento River Partners' proposal for the following reasons:

- 1) The project will reconnect existing fragments of riparian forest, thus completing a riparian corridor stretching 10 river miles and encompassing 12,300 acres of conservation ownership.
- 2) Over 100,000 native trees will be planted and established.
- 3) The restoration will provide critically needed habitat for important wildlife species such as chinook salmon, valley elderberry longhorn beetle, giant garter snake, and a variety of migratory birds.

Sacramento River Partners is a local community-based organization, working closely with local landowners, businesses, government agencies, and other organizations. This collaboration ensures that local interests are addressed in their restoration efforts.

We perceive this project to be viable and worthwhile from both biological and economic standpoints. The Altacal Audubon Society urges your support of this proposal.

Sincerely yours,

Beverly Chinas  
Conservation Chair

**SACRAMENTO RIVER ADVISORY COUNCIL**  
c/o CALIFORNIA DEPARTMENT OF WATER RESOURCES  
2440 MAIN STREET  
RED BLUFF, CALIFORNIA 96080

*Denny Bungarz, Chair • (530) 934-7342 • dbungarz@glenncounty.net  
Burt Bundy, Sacramento River Conservation Area Coordinator • (530) 528-7411 • burtbundy@snomcrest.net*

April 15, 1999

Mr. Lester Snow, Executive Director  
CALFED Bay Delta Program  
1416 Ninth Street  
Sacramento, CA 95814

**Ref: Active Reforestation on the Sacramento River**

**Proponent: Sacramento River Partners**

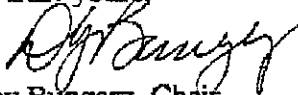
Dear Mr. Snow

Based on the information provided by the project proponent of this project and with the understanding of continued studies and hydrologic and hydraulic review we find that this project is consistent with and furthers the objectives of the Sacramento River Conservation Area (SB1086) as outlined in the SRCA Handbook. An essential part of this effort continues to be close coordination with affected public and private landowners, government agencies, and other groups and individuals. The essence of the Sacramento River Conservation Area (SB1086) process is communication and coordination from a wide variety of interests along the river.

This proposal has been presented to both the Advisory Council and its' Riparian Habitat Committee, and the Council has authorized me to forward its' actions on this proposal.

Thank you for your consideration.

Very truly yours,



Denny Bungarz, Chair  
Sacramento River Conservation Area Advisory Council

cc: Sacramento River Partners

Richard Thieriot

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

May 12, 2000

Dear Mr. Ritchie,

I am writing to express my strong support for the proposal submitted by Sacramento River Partners to the CALFED Bay-Delta Program. The proposal requests funding to restore 8,500 linear feet of shaded riverine aquatic (SRA) and 400 acres of riparian habitat on the Llano Seco Unit of the Sacramento River National Wildlife Refuge.

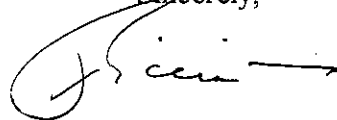
My grandfather purchased the Llano Seco Ranch back in 1861 and our family farmed this land up until 1991 when we sold this portion of the ranch to the U.S. Fish & Wildlife Service. At the time of the sale, our intent was to see this flood-prone farmland returned back to its natural state of riparian forest. Sacramento River Partners' proposal will reforest this parcel, in its entirety, within a three-year time frame.

As landowners and farmers, we welcome the opportunity to work cooperatively with both Sacramento River Partners and the U.S. Fish & Wildlife Service in this riparian reforestation project. Currently, we are reforesting some of our own flood-prone land on adjacent fields and are very interested in directing our own restoration efforts to link up with the proposed project. This would extend the connectivity of the riparian corridor inland from the river to existing habitat along Angel Slough.

Sacramento River Partners' Llano Seco restoration project will demonstrate that agricultural and environmental objectives and interests are not mutually exclusive. The proposed project makes sense from a biological, agricultural, economic and flood damage reduction perspective.

I urge you to support this proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Thieriot', with a large, stylized initial 'R'.

Richard Thieriot

May 15, 2000

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Dear Mr. Ritchie:

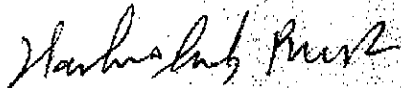
Please add my name to the list of adjoining landowners and farmers who strongly support the proposal submitted by Sacramento River Partners to the CALFED Bay-Delta Program. The proposal requests funding to restore 8,500 linear feet of shaded riverine aquatic (SRA) and 400 acres of riparian habitat on the Llano Seco Unit of the Sacramento River National Wildlife Refuge.

I farm walnuts and almonds on land to the southeast of the proposed restoration site and I believe this project will not adversely affect my farming operation.

Sacramento River Partner's Llano Seco restoration project will demonstrate that agricultural and environmental objectives and interests are not mutually exclusive. The proposed project makes sense from a biological, agricultural, economic and flood damage reduction perspective.

I urge you to support this proposal.

Sincerely,



Harbans Pamma





**Butte  
Environmental  
Council**

**Office**

116 W. Second Street  
Suite 3  
Chico, CA 95928  
530/891-6424  
530/891-6426 Fax  
www.becnet.org

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May 5, 2000

Mr. Steve Richie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth St., Suite 1155  
Sacramento, CA 95814

Dear Mr. Richie,

Butte Environmental Council, an 800-member environmental organization in Butte County, California, strongly supports the proposal submitted by Sacramento River Partners to the CALFED Bay-Delta Program for the restoration of riparian habitat at the Llano Seco Unit of the Sacramento River National Wildlife Refuge.

As a local organization, Sacramento River Partners is particularly well-qualified to carry out this restoration work since they have already developed good working relationships with local landowners, government agencies, businesses and the environmental community.

This project has the potential to be the model for large-scale riparian restoration in California and makes sense both for biological and economic reasons. We urge you to support this proposal.

Sincerely,

Barbara Vlamis  
Executive Director



10 May 2000

Re: CALFED proposal by Sacramento River Partners: Integrating Riparian Restoration and Floodplain Management at Llano Seco Rancho, Butte County, California.

To Whom It May Concern:

This letter is in support of the Sacramento River Partners' CALFED proposal to restore 400 acres of riparian communities at the Llano Seco Unit of the Sacramento River National Wildlife Refuge. In my ten years of experience studying and restoring Central Valley riparian systems, this proposal will be the first to implement a balanced planting design that designates planting location based upon geomorphic position and attempts to define hydraulic-vegetation interactions.

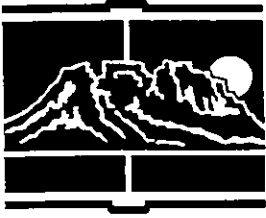


In 1997, the Army COE funded the development of a hydraulic model for this reach (Ayers Report for RM 174 to RM 194). Under this CALFED proposal the Murray, Burn, Kienlen Corporation will develop a site-specific model that will predict river flows under current (pre-project) topographic and vegetation cover conditions. Subsequent restoration activities will include experimental plantings of different species planted in various configurations. For example, Shaded Riverine Aquatic (SRA) habitat will be restored by planting riparian tree and shrub species along 2.5 miles of eroding bank. The careful monitoring of survival, growth, and sediment deposition/erosion in the various locations on the floodplain, combined with results from the various planting-patterns, should advance our knowledge of hydraulic-vegetation interactions. These results will be important as starting points for future more refined experimental plantings that will test the use of riparian vegetation to stabilize banks and to accumulate sediments that create low levees or otherwise direct flood-flows in a planned manner. Such results will have system-wide applicability.

Currently this 400 acres is covered by several kinds of non-native plants that appear to be holding their own despite several floods over the past few years. This shows that riparian forest regeneration will be a very long, slow process, possibly requiring many decades to get a foothold. Actively planting this site will be necessary to restore the wildlife habitats that are so sorely needed here. I am confident that Sacramento River Partners will implement this project with the high standards that will be necessary for success.

Sincerely,

F. Thomas Griggs, Ph.D.  
Adjunct Professor



# Butte College

BUTTE COMMUNITY COLLEGE DISTRICT

3536 Butte Campus Drive  
Oroville, CA 95965-8399

10 May 2000

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Dear Mr. Ritchie:

The Department of Biological Sciences at Butte College enthusiastically supports the proposal submitted to your program by Sacramento River Partners. This 3-year restoration project has great value, both biologically and educationally.

The project would restore a large tract of fallow agricultural land and adjacent riverbank to biologically significant valley oak woodland and mixed riparian forest. These habitats have been historically reduced and continually threatened. Any expansion of these plant communities is valuable because of the diverse biological resources they contain. The proposal is particularly noteworthy because the project site is positioned to reconnect fragments of existing riparian forest along the Sacramento River, thus creating a large continuous stretch of critical habitat.

The project is also valuable to us for the educational opportunities it offers. We are already planning class field trips to the project area to study existing stands of riparian forest and oak woodland, as well as the restored site. It is a unique setting for examining plant community structure, successional phenomena and restoration biology. We visualize the possibility of involving students in aspects of the restoration work as a required assignment, an independent service learning project and/or a voluntary endeavor. We also may teach and utilize plant and animal censusing techniques on and near the site. Finally, we are intrigued by the possibility of using the project area for educational outreach to our campus community.

We believe this project has considerable merit and we encourage you to fund it.

Sincerely,

Department of Biological Sciences Full-time Faculty:

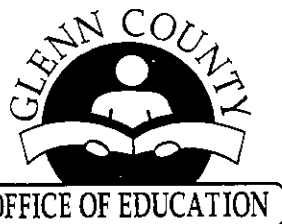
Dr. Gary Fugle, Chair

Ms. Katherine Newman

Mr. Paul Mason

Mr. Albin Bills

Ms. Katya Yarosevich



525 W. Sycamore St.  
Willows, CA 95988  
(530) 934-6575  
FAX (530) 934-6576

**Dr. Joni K. Samples**  
Superintendent of Schools

**Board of Education**

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Catherine Hanes  
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*"Quality Programs  
and Service  
for Lifelong Learning"*

May 3, 2000

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, California 95814

Dear Mr. Ritchie:

We would like to state our strong support for the proposal submitted by Sacramento River Partners to the CALFED Bay-Delta Program. This proposal requests funding for a 3-year project that would implement the restoration of riparian habitat at the Llano Seco Unit of the Sacramento River National Wildlife Refuge in Butte County, California. The project will restore 400 acres of fallow flood-prone agricultural land, including 8,500 feet of shaded riverine habitat (SRA) and 2,600 feet of armored bank, to mixed riparian forest and oak woodland.

Glenn County Office of Education supports Sacramento River Partners' proposal for several reasons. Restoring this site will provide critically needed habitat for threatened and endangered species such as Chinook salmon, Valley Elderberry Longhorn Beetle, Giant Garter Snake, and migratory birds. Actively planting native trees on this property will also provide an excellent "classroom in the field" for local school children. Sacramento River Partners and Glenn County Office of Education are working cooperatively on other restoration projects to provide hands-on educational opportunities in ecology and biology.

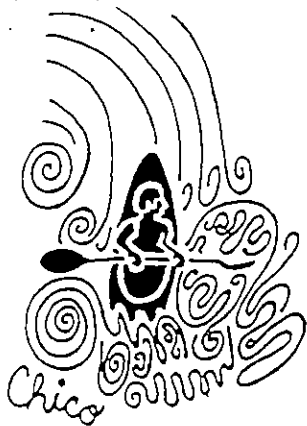
Recently, Glenn County Office of Education was awarded a \$45,000 Pacific Gas and Electric Company grant to further develop this program. The proposed Llano Seco restoration site, so close to our schools will be a wonderful asset to our students.

We urge you to support this proposal.

Sincerely,

Joni Samples  
Superintendent of Schools  
Glenn County Office of Education

Ann Lambert  
Assistant Superintendent, Curriculum and Instruction  
Glenn County Office of Education



## PADDLEHEADS

paddle often, paddle hard

May 13, 2000

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, California 95814

Dear Mr. Ritchie,

I am writing on behalf of the Chico Paddle Heads. We are a local paddling club made up of kayakers, canoeists, and rafters that share the love for rivers throughout Northern California. We are aware of Sacramento River Partner's CALFED proposal to restore 400 acres of riparian forest on the Llano Seco Unit of the Sacramento National Wildlife Refuge in Butte County, California. We would like to strongly express our support for this project.

Paddle Heads supports the Sacramento River Partners' proposal for several reasons. The project will complete a ten mile corridor of riparian forest along the Sacramento River. This restored property will benefit a variety of wildlife, and will greatly enhance the recreational experience along this stretch of river. As a local organization, one of our priorities is the conservation of local rivers. The members of our club voted to support this project by volunteering time and offering a letter of support.

One of the reasons we support Sacramento River Partners is the fact that it is one of our community-based organizations. The collaboration between local landowners, businesses, government agencies, and clubs like ours, ensures local concerns are addressed. We urge you to support this proposal.

Thank you for your consideration,

Victoria Vine  
Paddle Head President

# California Native Plant Society

Jim Bishop, President  
Mount Lassen Chapter  
Calif. Native Plant Soc.  
10 May 2000

Steve Ritchie, Acting Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, California 95814

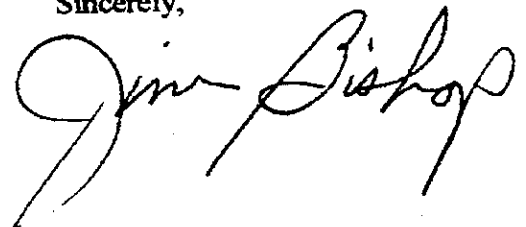
Dear Mr. Ritchie:

The Mount Lassen Chapter of the California Native Plant Society, whose area includes the proposed project, strongly supports the proposal submitted to the CALFED Bay-Delta Program by Sacramento River Partners. The request is to fund a 3-year project to restore riparian habitat at the Llano Seco Unit of the Sacramento River National Wildlife Refuge in Butte County. The project will restore mixed riparian forest and oak woodland to 400 acres, including 1.6 miles of riverside habitat.

Our Chapter supports the proposal for the important environmental improvements it promises. The project will connect fragments of existing riparian forest in a continuous riparian corridor stretching for miles along the river. Over 100,000 native trees will be planted, helping to reverse the severe loss of riparian vegetation systems suffered along the rivers of the Sacramento valley. Restoration of the Llano Seco site will help re-establish an important and much-diminished plant community, in the bargain providing essential habitat for fish, reptiles, insects, and birds.

Sacramento River Partners is a local, community-based organization with whom we have worked before. We anticipate opportunities to collaborate on outings to involve our members in the restoration work, while they gain opportunities to visit the riparian forest. Sacramento River Partners are good cooperators, and endeavor to work well with all involved agencies and organizations. The project is a cost-effective and important contribution to re-establishing a critical ecosystem. Please support them in the pursuit of their proposal.

Sincerely,



*Dedicated to the preservation of California native flora*